802.3 draft development process

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Outline

- IEEE 802.3 Q&A
- Life of IEEE 802.3 project draft
  - Initial draft version (unofficial Task Force draft)
  - Task Force Review (D1.x) (unofficial step)
  - Working Group Ballot (D2.x) (official step)
  - Sponsor Ballot (D3.x) (official step)
  - Final Approvals & Publication
- Baseline Proposals
- Tasks & Responsibilities of Project Editors

IEEE 802.3 Q&A

Background Information

- IEEE 802.3 Working Group (WG) has now two base standards: IEEE Std 802.3-2012, and IEEE Std 802.3.1-2013, collecting in a series of **clauses** all necessary requirements, definitions, MIBs, etc. to build fully-functional interoperable Ethernet PHY, MAC, MAC Control, PoE solutions, etc..

- Almost all new projects under 802.3 WG add new requirements into **base standard**(s) by amending the base standard in question.

- Periodically, **amendments** and **corrigenda** to the base standard are combined with the base standard in the process referred to as **revision**.

- More details on the following slides

What is a **clause**?

- A **clause** represents one of chapters in the base standard, containing requirements for the given layer, sublayer, interface, functional block, etc.

- For some PHYs containing multiple sublayers, interfaces, and functional blocks, a complete PHY description features multiple clauses. Other PHYs/MAUs may be described in a single Clause, for example 1000BASE-T.

- For example, to understand the operation of a 1G-EPON link, one needs to be read Clause 60 for PMD, Clause 65 for PCS, Clause 64 for MPCP, Clause 57 for OAM, Annex 4A for MAC, and selected subclauses in Clause 30 (management) and Clause 45 (MDIO registers). Some of functions are mandatory (e.g., PHY, MAC) while others may be optional (e.g., OAM).

Keywords (I)

- IEEE Std 802.3 uses a number of keywords with specific reserved meaning:
  - The word **shall** indicates **mandatory requirements** strictly to be followed in order to conform to the standard and from which no deviation is permitted (***shall** equals **is required to***).
  - The word **should** indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (***should** equals **is recommended that***).

Source: https://standards.ieee.org/develop/policies/opman/sect6.html#6.4.7

Keywords (II)

- IEEE Std 802.3 uses a number of keywords with specific reserved meaning:
  - The word **may** is used to indicate a course of action permissible within the limits of the standard (***may*** equals ***is permitted to***).
  - The word **can** is used for statements of possibility and capability, whether material, physical, or causal (***can* equals *is able to***).
  - The use of the word **must** is deprecated and shall not be used when stating mandatory requirements; **must** is used only to describe **unavoidable situations**.
  - The use of the word **will** is deprecated and shall not be used when stating mandatory requirements; **will** is only used **in statements of fact**.

Source: https://standards.ieee.org/develop/policies/opman/sect6.html#6.4.1

Normative / Informative

- Normative text is information that is **required** to implement the standard and is therefore officially part of the standard:
  - The main clauses of the documents including figures and tables
  - Footnotes to tables
  - Footnotes to figures
  - Annexes marked as "(normative)"
- Informative text is provided for **information only** and is therefore not officially part of the standard:
  - Frontmatter
  - Notes to text, tables, and figures
  - Footnotes within text
  - Annexes marked as "(informative)", (e.g., Bibliography)

PICS

- Protocol implementation conformance statement (PICS) provides a list (in the form of a series of subclauses and tables) of mandatory and optional requirements listed in the given clause.

- The supplier of a protocol implementation that is claimed to conform to the specific Clause shall complete the PICS proforma for the given Clause listed in the specific subclause(s).

FrameMaker

- FrameMaker is the software tool used by IEEE 802.3 WG (and the larger IEEE-SA as well) for the development of draft amendments and base standards.

- IEEE 802.3 WG is currently using FrameMaker 10

What is a **base standard**?

- A **base standard** is the latest approved version of the given standard (here, specifically IEEE Std 802.3) with any approved amendments, corrigenda and errata.

- This base standard represents the latest status of IEEE Std 802.3 (including also approved amendments, corrigenda, and errata) at the time when the given project is started.

- At this time, the base standard for all 802.3 WG projects is IEEE Std 802.3-2012 + all approved corrigenda (none at this time) and errata (one published so far)
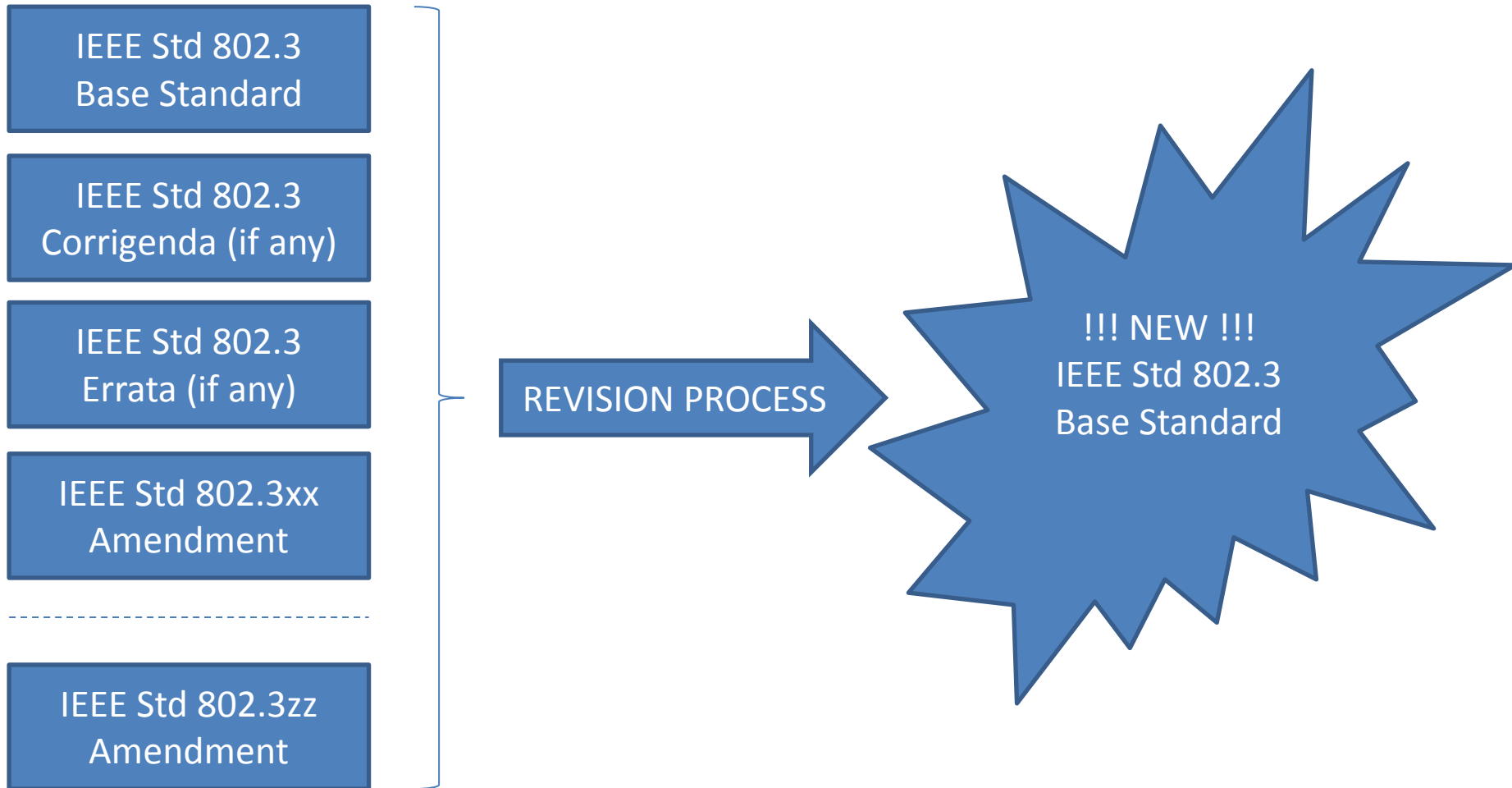
What is an **amendment**?

- An **amendment** to the base standard shows all the changes to the base standard (see slide 11) required to accommodate the specific set of requirements in the given project.

- An amendment may:
  - Change existing content, by adding new text (shown in underline) or removing existing text (shown in strikethrough)
  - Add completely new clauses, subclauses, figures, tables, etc., all marked with proper editorial instructions.

- An amendment must be read together with the base standard it modifies and never as a stand-alone document.

What is a **revision**? (I)

- A **revision** is a process of merging all published amendments, errata, corrigenda, and **maintenance requests** into the base standard (slide 11); opening the resulting draft for 802.3 WG Ballot followed by Sponsor Ballot; and once approved – publishing the new version as the next version of base standard.

- For example, the latest revision process (IEEE P802.3bh) took IEEE Std 802.3-2008, and merged corrigenda (IEEE Std 802.3-2008/Cor 1), as well as published amendments (IEEE Std 802.3bc-2009, IEEE Std 802.3at-2009, IEEE Std 802.3av-2009, IEEE Std 802.3az-2010, IEEE Std 802.3ba-2010, IEEE Std 802.3bd-2011, IEEE Std 802.3bf-2011, IEEE Std 802.3bg-2011), maintenance requests, and comments received at different stages of the project, producing IEEE Std 802.3-2012.

What is a **revision**? (II)

IEEE Std 802.3
Base Standard

IEEE Std 802.3
Corrigenda (if any)

IEEE Std 802.3
Errata (if any)

IEEE Std 802.3xx
Amendment

IEEE Std 802.3zz
Amendment

REVISION PROCESS

!!! NEW !!!
IEEE Std 802.3
Base Standard

What is a **maintenance request**?

- A **maintenance request (MR)** is a document submitted against the base standard (see slide 11), identifying a potential technical or editorial correction to that document.

- All MR in IEEE 802.3 WG are submitted to the standing Maintenance Task Force and then discussed at the following meeting (subject to submission deadlines).

- Once accepted, each MR is published online and then balloted during the next revision process (see slide 13).

- MRs serve the purpose of recording potential corrections to the standard, and NOT introducing new features, requirements, etc. – that is what projects are for.

Life of IEEE 802.3 project draft

Task Force Review
(unofficial step, not required to take place)
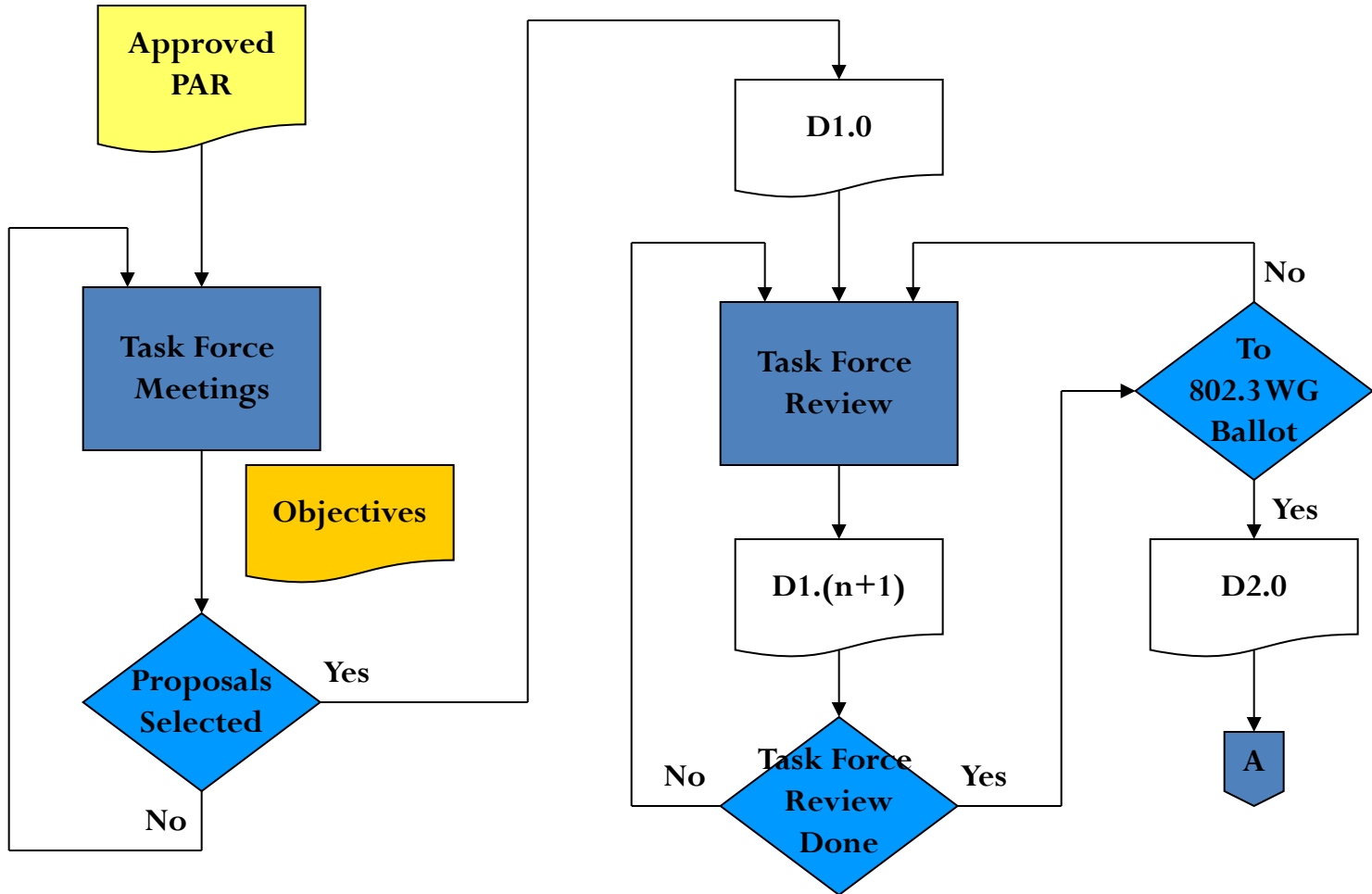
Pre-Task Force Review Draft (I)

- Before the Task Force (TF) review is started on D1.0, Project Editors typically prepare the initial version of the draft

- Such pre-TF review drafts have D0.x version numbers and:
  - Contain primary outline information to stimulate technical discussion and contributions
  - May contain material from other existing clauses with similar scope and coverage, to give a starting point for development of project-specific text
  - Are technically incomplete (and sometimes – technically incorrect) and represent collection of existing materials from other clauses, and editorial notes indicating the development directions for future draft versions

Pre-TF Review Draft (II)

- D0.x draft versions are not formally reviewed within the TF and are deposited in the private area for preview only

- Editors typically keep track of adopted baseline proposals and update the draft to make sure that the latest unofficial D0.x draft reflects the current status of TF consensus

- At some point of time, when TF believes the draft reaches the appropriate level of technical and editorial maturity, TF draft D1.0 is created and TF review is started.

Draft D1.0

- Draft D1.0 represents the first TF draft ready for TF review.

- It is the first milestone in any IEEE 802.3 WG project, opening the process of official TF review, comment consideration, and progressing the draft towards the Working Group ballot

- Draft D1.0 may be still technically incomplete, contain TBDs, editorial notes on missing text, etc., but these will be resolved through comments before D2.0 can be generated

Drafts D1.x (I)

- During the TF review process, comments and proposals are submitted against draft D1.x
- All received comments (including comments from the floor) are considered at the next TF meeting and discussed.
- Project Editor(s) take in approved comment responses, together with any accompanying materials, and generate draft D1.(x+1), using draft D1.x as baseline material for development
- Draft D1.(x+1) is then opened to another round of Task Force review

Drafts D1.x (II)

- The scope of review on D1.(x+1) may be limited to only changes between D1.x and D1.(x+1) to speed up convergence. The decision to do so is at the discretion of the TF Chair and TF membership.

- Who can participate in a TF Review process?
  - Anybody may submit comments against the draft
  - It is best if the commenter is present at the meeting when their comments are debated – very often, additional discussion and clarification is needed
  - There is no formal voting taken during TF Review

When is TF Review done?

- The Task Force review process is complete when Task Force decides that draft D1.y is technically complete and editorially sound.

- At this time, no technical details should be missing, no TBDs are typically allowed, and the draft ought to have all technical features required to address the project objectives.

- By voting to request the IEEE 802.3 WG start WG ballot, the TF is affirming that its primary development work is done, and that the draft may be exposed to a larger community of experts (802.3 Working Group) for review and commenting.

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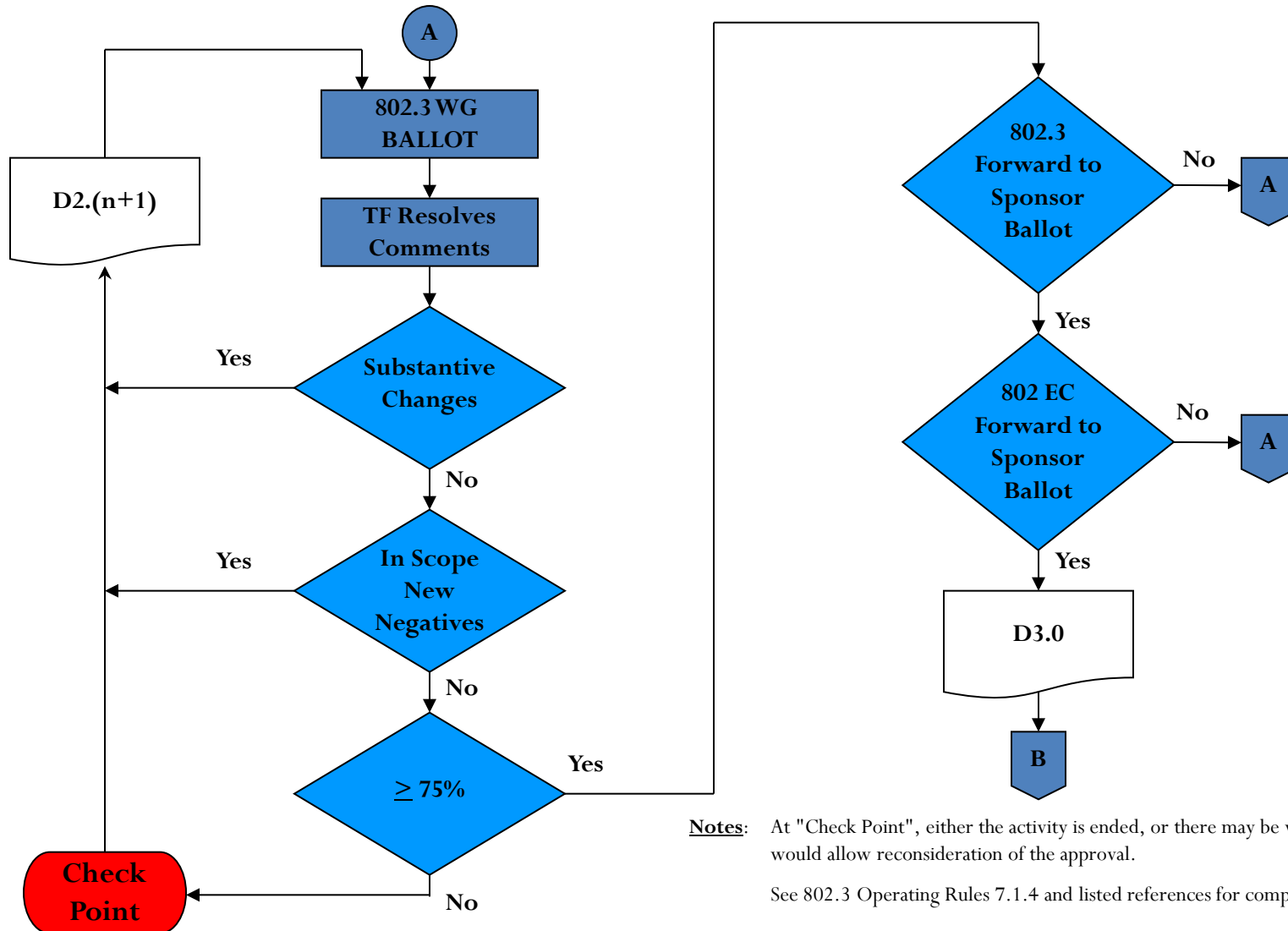
Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

See 802.3 Operating Rules 7.1.4 and listed references for complete description

WG Ballot on Draft D2.x (I)

- Development of draft D2.0 typically marks the start of the Working Group (WG) ballot.

- The process and tools are similar to those used during the TF Review, but one has to be a WG voting member to participate in any WG ballot.

- The process is more formalized now:
  - Each balloter casts a vote (approve with / without comments, disapprove, abstain)
  - Technical / editorial required comments may be submitted if severe technical / editorial issues are identified in the draft
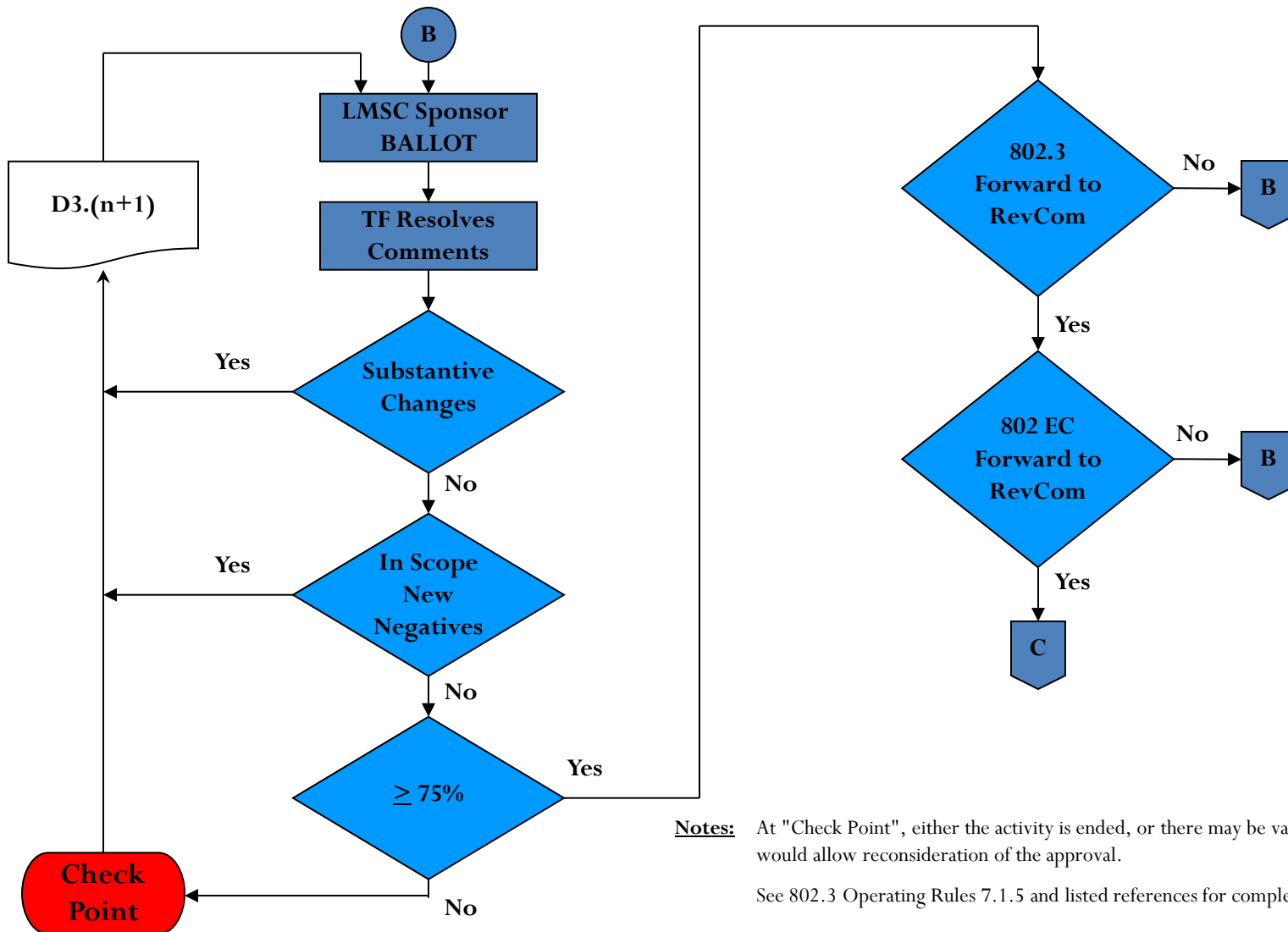
WG Ballot on Draft D2.x (II)

- For Project Editor(s), the WG Ballot is pretty much the same as TF Review, in that:
  - Comments are received and need to be processed in a timely fashion, with proposed responses ready before the next TF meeting
  - Draft is updated only based on comment responses and associated supplemental materials approved by the TF (now called officially Comment Resolution Committee)
  - Technical / Editorial Required comments need special treatment by the project Editor-in-Chief / Chair:
    - public confirmation of commenter satisfaction with the response if commenter present in the room
    - electronic / paper sign off on the response is needed otherwise

When is WG Ballot done?

- The end of WG ballot is well defined, with a number of condition that must be met to progress to Sponsor Ballot:
  - No substantive (technical) changes in the last recirculation
  - No new negative comments (TR/ER/T) associated with a Disapprove ballot in the last recirculation
  - ≥75% approval (Approve / Approve with comments)
  - ≥50% response ratio (number of returned ballots)

Sponsor Ballot Review

B

LMSC Sponsor BALLOT

TF Resolves Comments

D3.(n+1)

Substantive Changes — Yes

In Scope New Negatives — Yes

No

≥ 75% — Yes / No

Check Point

802.3 Forward to RevCom — No → **B**

Yes

802 EC Forward to RevCom — No → **B**

Yes

C

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 7.1.5 and listed references for complete description

Sponsor Ballot on Draft D3.x (I)

- Development of draft D3.0 typically marks the start of the Sponsor ballot.

- The process and tools are very similar to those used during the WG Ballot, but one has to be part of the Sponsor Ballot pool to participate in any Sponsor ballot.

  - Sponsor 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.

- The process has the same level of formalism as the WG Ballot, with ballots, required comments, etc.

When is Sponsor Ballot done?

- The end of Sponsor ballot is well defined, with a number of condition that must be met to complete the project:
  - No substantive (technical) changes in the last recirculation
  - No new negative comments (TR/ER/T) associated with a Disapprove ballot in the last recirculation
  - ≥75% approval (Approve / Approve with comments)
  - ≥50% response ratio (number of returned ballots)

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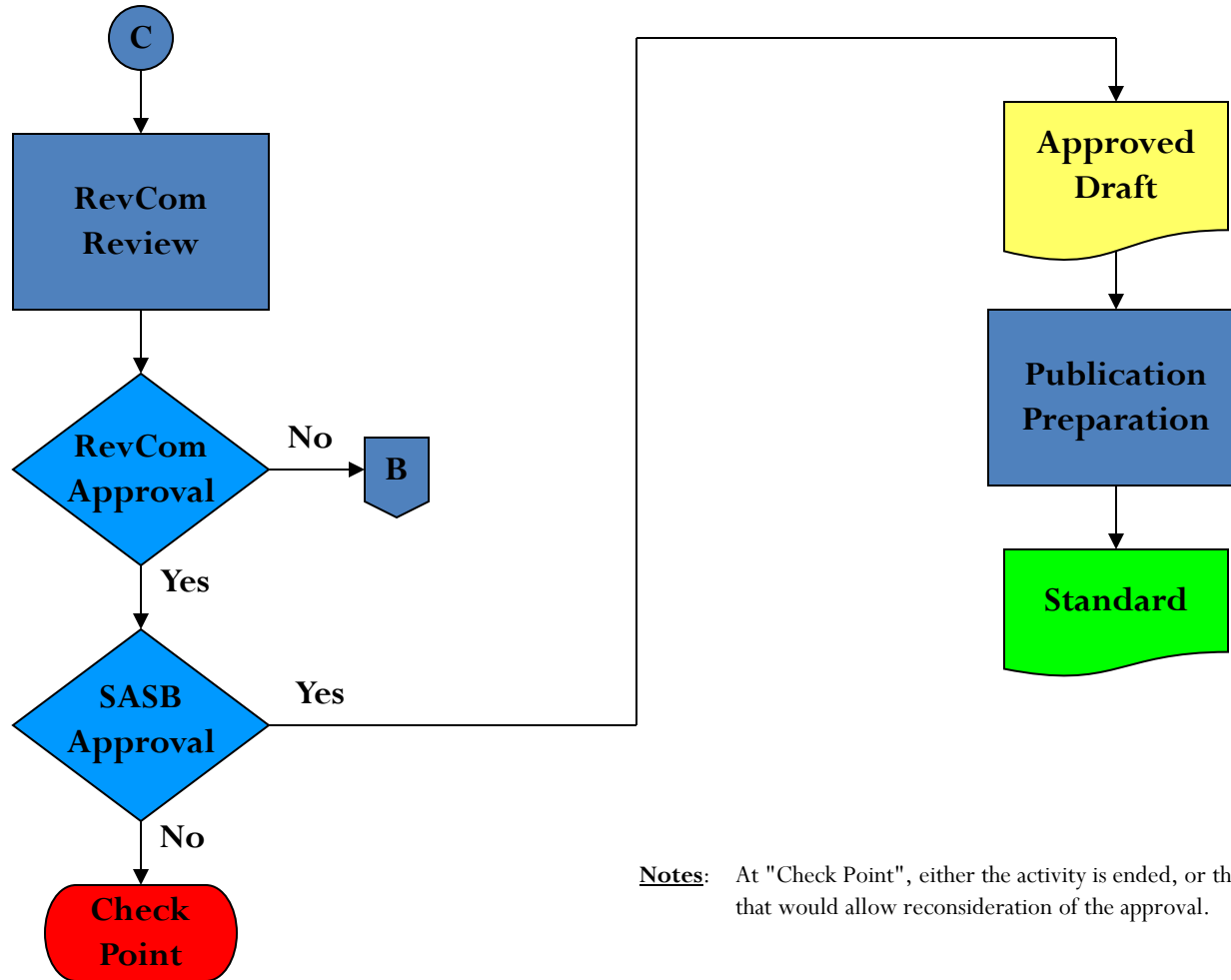
Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

And then … ?

- Once the Sponsor Ballot is complete, the final version of the draft is subject to IEEE RevCom review & approval, IEEE SASB approval and then pre-publication activities.

- At this time, the TF (Comment Resolution Committee) is typically disbanded (technical work is complete)

- Project Editor(s) and TF Chair cooperate with IEEE-SA Staff Editors on preparation of the draft for publication.

Baseline Proposals

What is baseline ?

- Baseline Proposal is not baseline just because you used "baseline" in the title slide or in the motion

- Baseline means that the given proposal is widely accepted (has many supporters) and it is technically complete (enough) to be included in the draft

- A baseline proposal must contain sufficient detail so that an editor can draft text without having to invent significant technical details
  - baseline proposals must be complete and definitive
  - options, choices, items that are "too be defined" are undesirable and allowed for initial draft versions (we need to start somewhere)

Working towards baselines (I)

- During its initial technical work, the TF reviews and evaluates concrete technical proposals for specific features to meet the project objectives
- Technical proposals are usually presented in the form of a slide deck / white paper
- Proposals evolve and be refined over the course of a few meetings
  - Details are "fleshed out", bugs and issues are resolved
- Competing proposals are welcome!
  - Only one will eventually prevail and be included in the draft. Options are typically **<u>not</u>** welcome !

Working towards baselines (II)

- TF members must study all of the proposals
  - Everyone will need to understand specific proposals in order to vote on them in an educated manner
  - Make your proposals clean and seek consensus / support ahead of time
  - Some proposals will die for lack of support – you're the only one responsible for making sure the proposal is successful, so seek consensus ahead of the meeting time
- The best proposals gain support over time and become <u>baseline proposals</u> for the given feature

How many baselines are needed ?

- In a major project (such as P802.3av), multiple baseline proposals must be developed to address all objectives
  - see http://www.ieee802.org/3/av/public/baseline.html
- Baseline development requires coordination
  - For example, PMDs must work with PMAs, and vice versa
- A coherent set of baseline proposals can be pulled together in to what is referred to as a "blue book"
  - In the good ol' days, we actually bound the printed proposals into a book
  - Now, we try to pull separate smaller baselines into one larger, more complete contribution with wider support

Selecting baselines

- Typically, various proposals are submitted for the given feature (e.g., FEC code selection)
- To select the one and only proposal that gets to be called a <u>baseline</u>,
  - In a series of votes, baseline proposals are voted up, or down. ≥ 75% votes is required for adoption
  - Once approved, ≥ 75% votes is required to change baseline
  - Once draft is created, changes to technical details are done through comments (and still require ≥75% votes in case of controversial changes)

Baselines and draft

- Once a coherent and set of baseline proposals has been adopted, the editorial team goes to work, preparing the first official TF draft
  - Number of baselines required for the first version of the draft differs from project to project.
  - As an example, P802.3av collected more than 30 baseline proposals before the work on the draft was actually started. P802.3bf needed only one baseline proposal to get the draft development started.
  - The quality of baseline proposals should go always before the quantity. Getting fewer but more complete proposals is always better than separating them into small pieces and taking many motions.

Tasks & Responsibilities
of Project Editors

Project Editor(s)

- The editorial team consists of volunteers from the TF with proper skills (technical and editorial)
  - Usually appointed by the TF chair, and confirmed by the TF
  - "Editor-in-Chief" supervises and coordinates the work of the editorial team (Associate Editors), working on individual tasks
- Each editor gets at least one clause to work on, depending on experience, skills, and free time
- Initial versions of the draft require substantial quantity of time and attention to detail
  - Later on in the process, more time is spent handling comments

Project Editors' Duties

- Consolidate all approved baselines into the draft
- Ensure style and format of the draft is consistent with the official IEEE Style Manual (current version: 2012)
- Make sure text is grammatically correct
- Editors DO NOT:
  - Create text of draft based on bullets from PowerPoint presentations (we also have paying jobs to do)
  - Fill in missing technical details from baselines (any TBDs from baselines will be included in the draft as well)
  - Get into your head to figure out what you want to say. We will not rewrite text for you – make your proposal clear from the get go.

Keeping Your Editors Happy

- Editors spend a lot of time between meetings working on the draft, incorporating baselines and received comments

- Keeping Editors happy is simple:
  - Provide us with complete baseline materials (editable files in Word / FrameMaker / plain text, including all the necessary text, figures, drawings, code, etc.)
  - Do not expect us to come up with descriptive text – if it is not included in the approved baseline, it will not be included in the draft.
  - Editors in 802.3 perform **<u>editing</u>** – they do not write the spec from scratch on their own, produce missing technical features, or resolve technical conflicts between baselines

Preferred File Formats

- For text:
  - Word (.doc(x)), FrameMaker (.fm), plain text (.txt)
  - Excel (.xml(x)) works fine for table data
  - PDF files are acceptable for text ONLY !!!
- For drawings / figures
  - Editable formats are welcome: FrameMaker (.fm), Visio (.vsd) for simple content copying
  - Reproducing drawings from non-editable formats (jpg, bmp etc.) takes extra time and we do not guarantee high fidelity
- PPT(X) contributions take very long time to convert into draft and usually end up being incomplete
  - please avoid them for anything more complex than a simple text contribution