



Agenda and General Information

IEEE 802.3

**25 Gb/s Ethernet over a single lane
for server interconnect Study Group**

Mark Nowell, Cisco

Kanata, Ontario, Sept 11-12, 2014

Agenda

- Appointment of Recording Secretary
- Confirmation of Chair
- Welcome and Introductions
- Approve Agenda
- ~~Approve Minutes~~
- Goals for this meeting
- Big Ticket Items
- Reflector and Web
- Ground Rules
- IEEE
 - Structure, Bylaws and Rules
 - Call for Patents
 - IEEE Standards Process
- Presentations
- Motions and Closing Business
- Future Meetings

Study Group Decorum



- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (December 2013 IEEE-SA Standards Board Ops Manual 5.3.3.5)
- Photography or recording by permission only (December 2013 IEEE-SA Standards Board Ops Manual 5.3.3.4)
- Cell phone ringers off
- Wear your badges at all times in meeting areas
 - Help the hotel security staff improve the general security of the meeting rooms
 - **PCs HAVE BEEN STOLEN** at previous meetings
 - **DO NOT** assume that meeting areas are secure
- Please observe proper decorum in meetings



Goals for the meeting

- Develop a set of objectives for the project
- Develop responses for the CSD (Criteria for Standards Development)
- Develop a PAR
- Review presentations substantiating the above
- Lay the ground work for the next meeting



Big ticket items

- Same as the goals
- Objectives, CSD, PAR

Reflector and Web

- To subscribe to the 25Gb/s Ethernet Study Group reflector, send an email to:

ListServ@ieee.org

with the following in the body of the message (do not include “<>”):

***subscribe stds-802-3-25G <yourfirstname> <yourlastname>
end***

- Send 25Gb/s Ethernet reflector messages to:

stds-802-3-25G@listserv.ieee.org

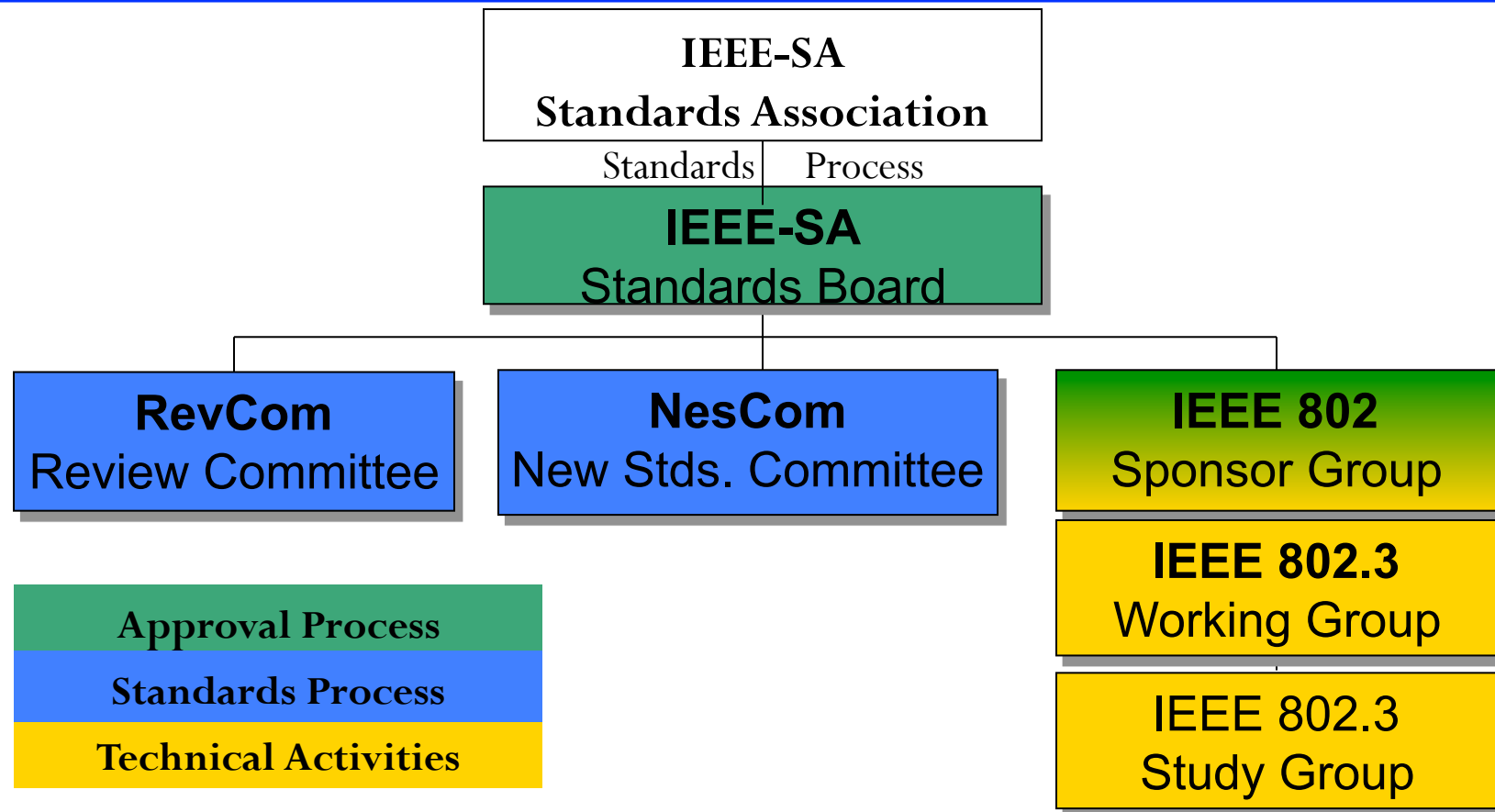
- Study Group web page URL:

<http://www.ieee802.org/3/25GSG/index.html>

Ground Rules

- Based upon IEEE 802.3 Rules
 - Foundation based upon Robert's Rules of Order
 - Anyone in the room may speak
 - Anyone in the room may vote
- **RESPECT**... give it, get it
- NO product pitches
- NO corporate pitches
- NO prices!!!
 - This includes costs, ASPs, etc. no matter what the currency

IEEE Structure



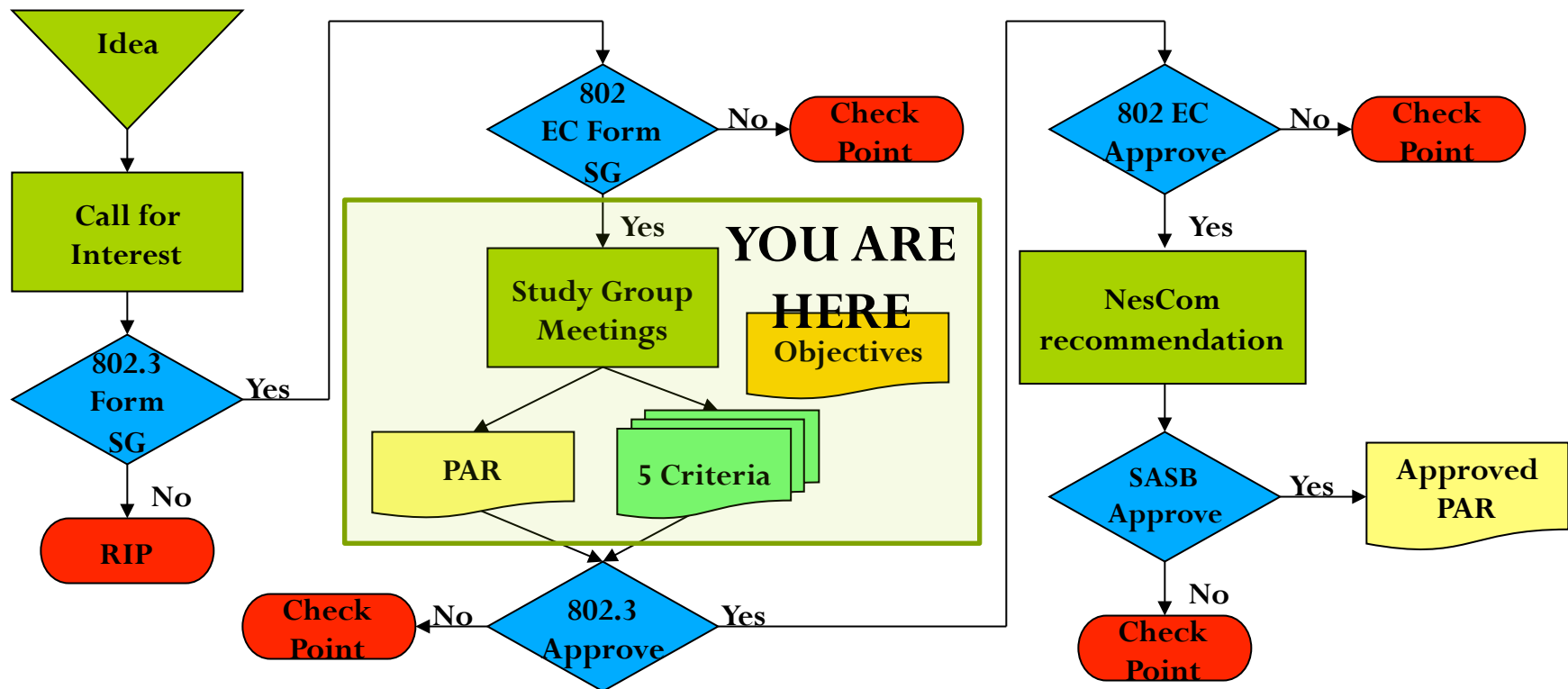
Important Bylaws and Rules

- **IEEE-SA Operations Manual**
http://standards.ieee.org/develop/policies/sa_opman/
- **IEEE-SA Standards Board Bylaws**
<http://standards.ieee.org/develop/policies/bylaws/>
- **IEEE-SA Standards Board Operations Manual**
<http://standards.ieee.org/develop/policies/opman/>
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Policies and Procedures**
<http://standards.ieee.org/about/sasb/audcom/pnp/LMSC.pdf>
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual**
<http://www.ieee802.org/devdocs.shtml>
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**
<http://www.ieee802.org/devdocs.shtml>
- **IEEE 802.3 Working Group Operating Rules**
http://ieee802.org/3/rules/P802_3_rules.pdf

Guidelines for IEEE-SA Meetings

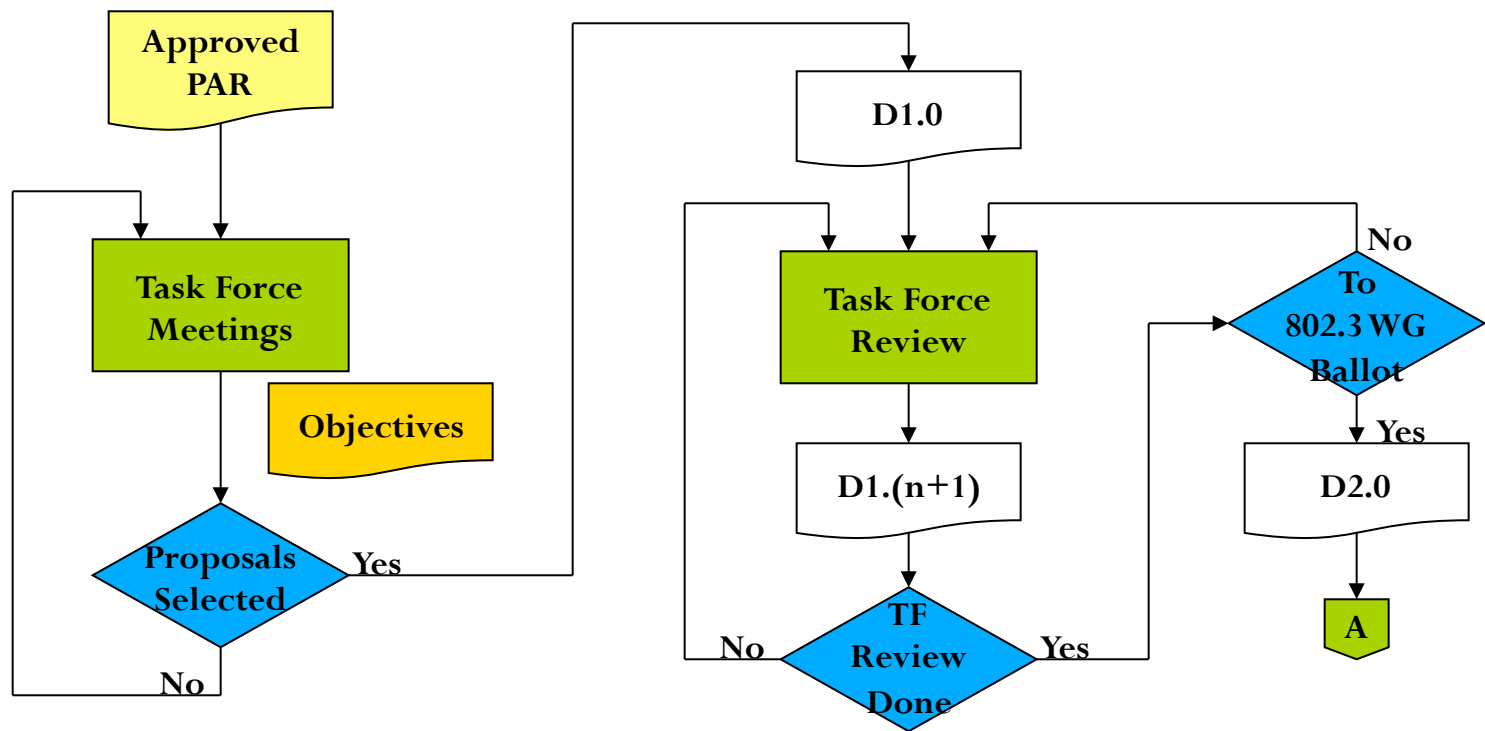
- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
 - **Don't discuss the interpretation, validity, or essentiality of patents/ patent claims.**
 - **Don't discuss specific license rates, terms, or conditions.**
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings.
 - Technical considerations remain primary focus
 - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
 - **Don't discuss the status or substance of ongoing or threatened litigation.**
 - **Don't be silent if inappropriate topics are discussed... do formally object.**
-

Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase

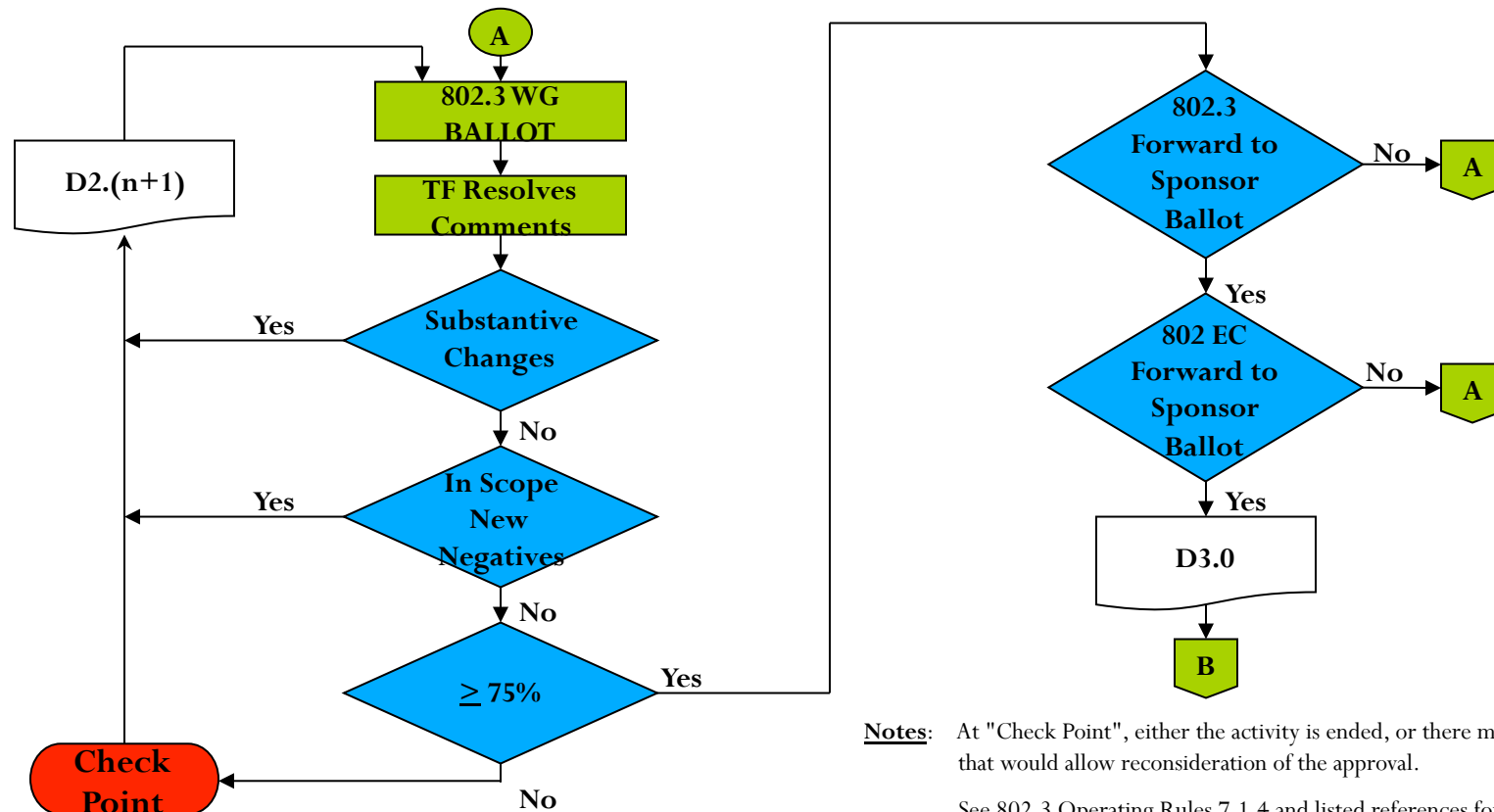


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

Overview of IEEE 802.3 Standards Process (2/5) – Task Force Comment Phase



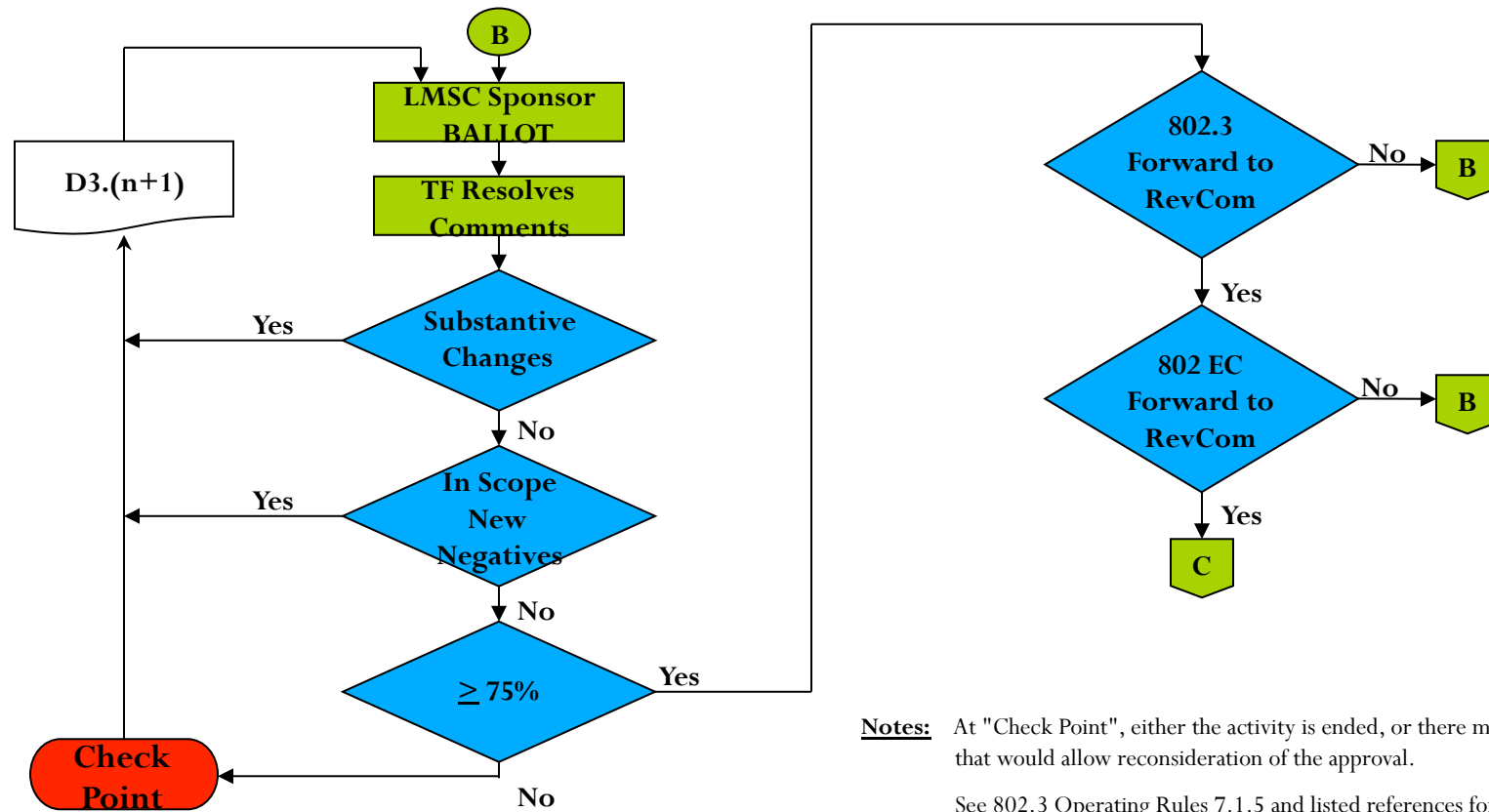
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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 7.1.4 and listed references for complete description

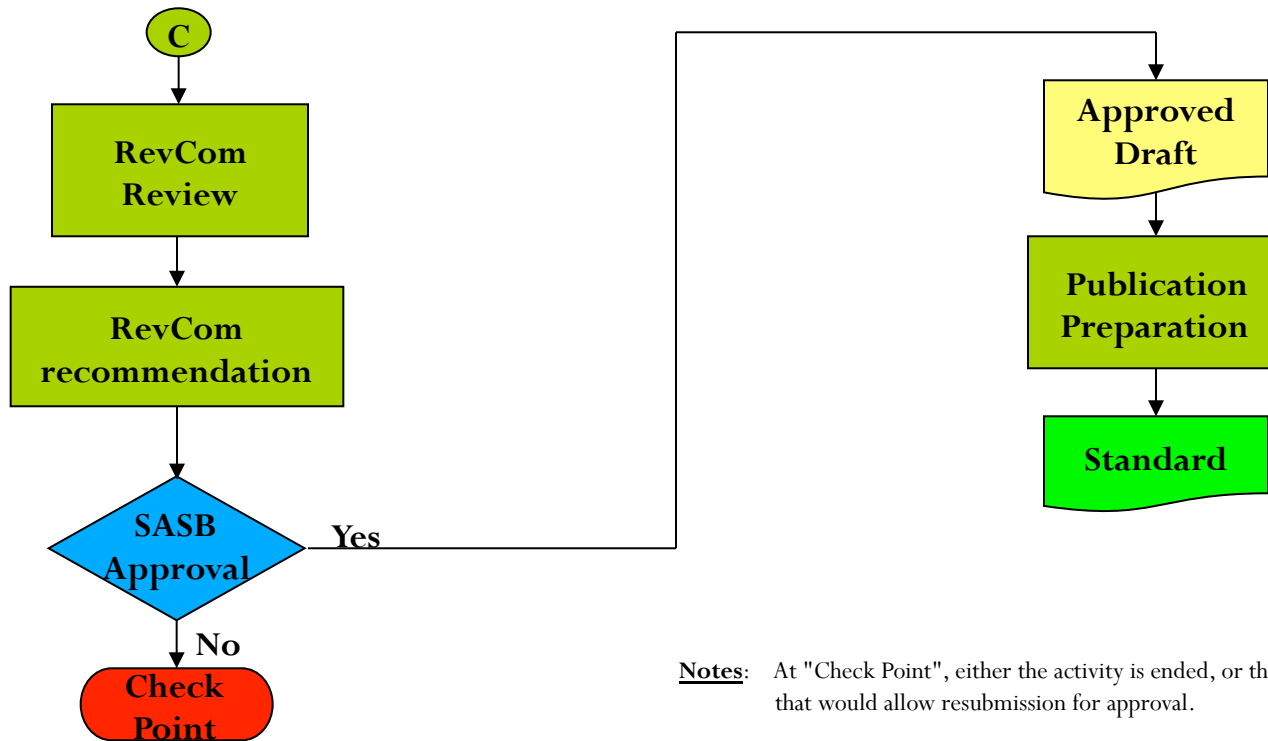
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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 7.1.5 and listed references for complete description

Overview of IEEE 802.3 Standards Process (5/5) – Final Approvals / Standard Release



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

The Study Group

- Normal function is to draft a complete PAR and CSD (aka Five Criteria)
- Provide a plenary week tutorial to the LMSC.
- Gain approval at the IEEE 802.3 WG, IEEE 802 EC, IEEE-SA NesCom and IEEE-SA Standards Board.
- SG only exists for 6 months
 - Extensions can be requested
 - Voted on by IEEE 802.3
 - Ratified by IEEE 802 EC
- Development of Objectives helps set the goals for the Task Force
- Consensus required to move forward
- Not a goal – choosing a solution.

Request for Formation of Study Group (as per July 2014 Plenary Motion)

Request that the IEEE 802.3 WG form a study group to develop a PAR and CSD for:

25 Gigabit/s Ethernet over a single lane for server interconnects

M: Mark Nowell

S: Howard Frazier

Procedural (>50%)

Y: 61 N: 0 A: 5

Crash course on Study Group goals

For an excellent overviews of the Study Group activities please refer to:

Overview of the Process – Wael Diab

http://www.ieee802.org/3/400GSG/public/13_05/diab_400_01_0513.pdf

Review of the 5 Criteria – Howard Frazier

http://www.ieee802.org/3/400GSG/public/13_05/frazier_400_01_0513.pdf

Guidelines for Project Objectives – Howard Frazier

http://www.ieee802.org/3/400GSG/public/13_05/frazier_400_02_0513.pdf

The following slides are taken from these excellent presentations

What does the Study Group produce?

- 5 Criteria
 - Broad Market Potential, Compatibility, Distinct Identity, Technical Feasibility, Economic Feasibility
- PAR
 - Your “contract” with the IEEE-SA and “authorization” to develop a standard
 - Broadly focuses on what the standard is that group will work on including scope, purpose, broad timeline (not a project plan)
 - Good idea to look at examples of prior projects
- Objectives
 - Your “contract” with 802.3
 - At a high level it is what the group will work on (and what it will not)
 - Somewhat more specific than the scope in the PAR

From:
Overview of the Process –
Wael Diab
[http://www.ieee802.org/
3/400GSG/public/13_05/
diab_400_01_0513.pdf](http://www.ieee802.org/3/400GSG/public/13_05/diab_400_01_0513.pdf)

Final Thoughts

- Goal is to get to a Task Force
- To do that, focus on
 - Producing the objectives
 - Producing the PAR
 - Producing the 5 criteria
 - Work on building consensus
 - Leave the rest of it to the Task Force phase
 - Plenty of time to work on solutions
 - Plenty of time to debate the text of the solutions

From:
Overview of the Process –
Wael Diab
[http://www.ieee802.org/
3/400GSG/public/13_05/
diab_400_01_0513.pdf](http://www.ieee802.org/3/400GSG/public/13_05/diab_400_01_0513.pdf)

History and traditions

- Project objectives are brief statements, usually written in bullet form, that summarize the technical objectives for a standards project in IEEE 802.3
- They represent a distilled set of high-level technical requirements
- They are created by the study group, approved by the parent working group, and are fulfilled by the task force
 - The task force may modify them, with the approval of the working group
- They typically address areas such as operating speed (bit rate), media, reach, BER, compatibility, impairments, coexistence
- Note that some other working groups address such areas in their Project Authorization Request, but we tend not to do this
- Every project undertaken in the IEEE 802.3 working group since (at least) 1992 has been guided by a set of objectives

From:
Guidelines for Project
Objectives – Howard
Frazier
[http://www.ieee802.org/
3/400GSG/public/13_05/
frazier_400_02_0513.pdf](http://www.ieee802.org/3/400GSG/public/13_05/frazier_400_02_0513.pdf)

Guidelines for writing and adopting

- Consensus building is key
 - Don't even think about offering up a motion to adopt an objective until you know you have significant support for it, otherwise, things will get ugly
- Offer objectives one at a time, using a motion like this:

Example - for illustrative purposes only!

 - Move that the Study Group adopt the following objective:
 - Provide a BER of 10^{-12} or better at the MAC/PLS service interface
- All votes on objectives are technical, requiring $\geq 75\%$ approval
- Sometimes, we try adopting just the form of an objective, before we can reach agreement on the specific values
 - These are called "Mad-libs" objectives

Example - for illustrative purposes only!

 - Move that the Study Group adopt the following objective:
 - Provide a BER of 10^{-n} or better at the MAC/PLS service interface
 - This is not the preferred approach!

Audience

- The 5 criteria are drafted and approved by a study group
- They are reviewed and approved (individually) by the working group
- They are subject to review and approval by each and every other working group in IEEE 802®
- They are reviewed and approved by the IEEE 802 executive committee

Purpose

- The 5 criteria are used to evaluate proposed projects
- They are used to filter out projects that are not appropriate for standardization in IEEE 802
- They are unique to IEEE 802
- They are one of the reasons why IEEE 802 standards are relatively successful
- They help perpetuate the “IEEE 802 culture”

The 5 Critters



Broad
Market
Potential



Compatibility



Distinct
Identity



Technical
Feasibility



Economic
Feasibility

Managed Objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

- a) The definitions will be part of this project.**
- b) The definitions will be part of a different project and provide the plan for that project or anticipated future project.**
- c) The definitions will not be developed and explain why such definitions are not needed.**

Coexistence

A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.

- a) Will the WG create a CA document as part of the WG balloting process as described in Clause 13?**
- b) If not, explain why the CA document is not applicable**

- A CA document is not applicable because the proposed project is not a wireless project.

Broad Market Potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

- a) Broad sets of applicability.
- b) Multiple vendors and numerous users.
- c) **Balanced Costs (LAN versus attached stations) [Removed from IEEE 802 5 Criteria Nov 2012]**



Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor.

- a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?
- b) If the answer to a) is “no”, supply the response from the IEEE 802.1 WG.
- c) Compatibility with IEEE Std 802.3
- d) Conformance with the IEEE Std 802.3 MAC
- e) Managed object definitions compatible with SNMP (see Managed Objects)



IEEE 802.3

Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

Substantially different from other IEEE 802.3 specifications / solutions.



IEEE 802.3

Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:

- a) Demonstrated system feasibility.
- b) Proven similar technology via testing, modeling, simulation, etc.



Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications.

Among the areas that may be addressed in the cost for performance analysis are the following:

- a) Balanced costs (infrastructure versus attached stations).
- b) Known cost factors.
- c) Consideration of installation costs.
- d) Consideration of operational costs (e.g. energy consumption).
- e) Other areas, as appropriate.



Attendance

- Tutorial Material on attendance tool
 - http://ieee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>
 - PW: Rideau
- Quick poll – Friday attendance and travel plans

Presentations – Thurs Sept 11th

8:30 AM	Mark Nowell	Cisco	Agenda and General Information	agenda_25GE_01_0914.pdf	0:45
9:15 AM	Matt Brown	APM	25GE Study Group Architecture Ad-hoc report	brown_25GE_01_0914.pdf	0:10
9:25 AM	Jonathan King	Finisar	25GE Study Group Optical Ad-hoc report	king_25GE_01_0914.pdf	0:10
9:35 AM	Matt Brown	APM	Overview of architecture ad-hoc presentations	brown_25GE_02_0914a.pdf	0:45
10:20 AM			Break		0:15
10:35 AM	John D'Ambrosia	Dell	Considerations for 25GbE	dambrosia_25GE_01_0914.pdf	0:30
11:05 AM	Richard Mellitz	Intel	Data Showing Market Potential and Feasibility Impact of 5m and 3 Meter Objectives	mellitz_25GE_01_0914.pdf	0:20
11:25 AM	Scott Kipp	Brocade	25GbE Server to Switch Architectures	kipp_25GE_01_0914.pdf	0:15
11:40 AM	Jonathan King	Finisar	Support for an objective of 25Gb/s over MMF	king_25GE_02_0914.pdf	0:40
12:20 PM			Lunch		1:00
1:20 PM	Steve Trowbridge	Alcatel-Lucent	OTN Support for 25GbE	trowbridge_25GE_01_0914.pdf	0:15
1:35 PM	Erdem Matoglu	Amphenol	Measurement Results of 3m 30AWG QSFP-to-4SFP Splitter Cable for Technical Feasibility of 25Gbps/lane Ethernet	matoglu_25GE_01_0914.pdf	0:15
1:50 PM	Mark Nowell	Cisco	Foundational Objectives	nowell_25GE_01_0914.pdf	0:20
2:10 PM	Howard Frazier	Broadcom	Strong Consensus Objectives	frazier_25GE_02_0914.pdf	0:30
2:40 PM	Jonathan King	Finisar	Optical PMD Objective	king_25GE_03_0914.pdf	0:30
3:10 PM			Break		0:15
3:25 PM	Howard Frazier	Broadcom	CSD responses for Managed Objects, Coexistence, Distinct Identity and Compatibility	frazier_25GE_01_0914.pdf	0:20
3:45 PM	Brad Booth	Microsoft	In Support of BMP and Economic Feasibility	booth_25GE_01_0914.pdf	0:30
4:15 PM	Joel Goergen	Cisco	CSD: Technical Feasibility	goergen_25GE_01_0914.pdf	0:30
4:45 PM	Mark Nowell	Cisco	PAR	25GE_PAR_0914.pdf	0:20
5:05 PM			Break		

Note –Times listed are subject to change.

Updated versions will be captured with new filename versions

Presentations – Fri Sept 12th

Note –Times
listed are subject
to change.

<u>Time</u>	<u>Presenter</u>	<u>Affiliation</u>	<u>Title</u>	<u>File Name</u>
9:30 AM	Mark Nowell	Cisco	Opening Comments	
9:45 AM	Erdem Matoglu	Amphenol	Measurement Results of 3m 30AWG QSFP-to-4SFP Splitter Cable for Technical Feasibility of 25Gbps/ lane Ethernet	matoglu_25GE_01_0914.pdf
10:00 AM	Richard Mellitz	Intel	Data Showing Market Potential and Feasibility Impact of 5m and 3 Meter Objectives	mellitz_25GE_01_0914.pdf
10:20 AM	Adee Ran	Intel	Cable Reach Objective Considerations	ran_25GE_01_0914.pdf
10:40 AM			Discussion & Closing Business	
11:00 AM			Adjourn	

Ad hoc charter

Ad-hoc meeting plans

Single on-going weekly meetings, all topics (will cycle) – agendas will be published. 90 mins.

Tues 8-9:30 Pacific proposed

Updated Charter

The charter of the 25 Gb/s Ethernet Study group Architecture Ad Hoc is to discuss topics towards supporting the developed objectives, PAR and CSD or for preparing the Task Force with contributions to help it prepare for future decisions.

Future Meetings & Ad hocs

- Ad-hoc meeting plans
 - Single on-going weekly meetings, all topics (will cycle) – agendas will be published. 90 mins.
 - Tues 8-9:30 Pacific proposed
- See: <http://www.ieee802.org/3/interims/index.html>
- Nov 2014 Plenary
 - San Antonio, Tx
 - Nov 2-7, 2014
- Jan 2015 Interim
 - Atlanta, Ga
 - Week of Jan 12th, 2015
- March 2015 Plenary
 - Berlin, Germany
 - Mar 9-12th, 2015
- Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).



Thank You!