

# Agenda and General Information

IEEE 802.3cd

**50 Gb/s, 100 Gb/s and 200 Gb/s Ethernet Task  
Force**

Mark Nowell, Cisco

Huntington Beach, CA

Jan 11<sup>th</sup>-13<sup>th</sup> , 2017

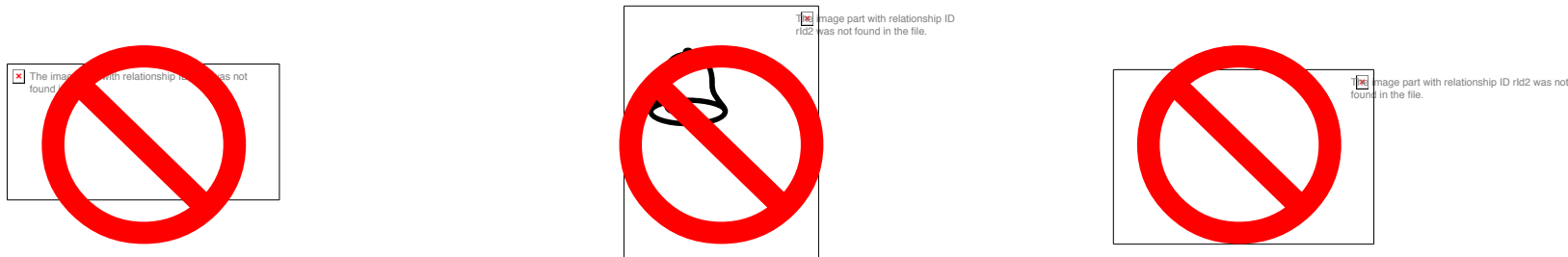
# Agenda

- Welcome and Introductions
- Approve Agenda
- Approve Minutes
- Reflector and Web
- Ground Rules
- IEEE
  - Structure, Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Liaisons and Communications
- Ad hocs
- Task Force documentation
- Schedule
- Goals for this meeting
- Meeting Schedule
- Motions and Closing Business
- Future Meetings

# P802.3cd Task Force organization

- Chair: Mark Nowell, Cisco
- Recording Secretary: Kent Lusted, Intel
- Chief Editor: Matt Brown, APM
- Ad hoc chair: Kent Lusted, Intel

# Task Force 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

# Reflector and Web

- To subscribe to the Task Force's reflector, send an email to:  
**ListServ@ieee.org**  
with the following in the body of the message (do not include "<>"):  
*subscribe stds-802-3-50G <yourfirstname> <yourlastname>*  
*end*
- Send Task Force reflector messages to:  
**stds-802-3-50G@listserv.ieee.org**
- Task Force's web page URL:  
<http://www.ieee802.org/3/cd/index.html>

# Task Force Private Area

- <http://www.ieee802.org/3/cd/private/index.html>
- U: 802.3cd
- P: \*\*\*\*

# Ground Rules

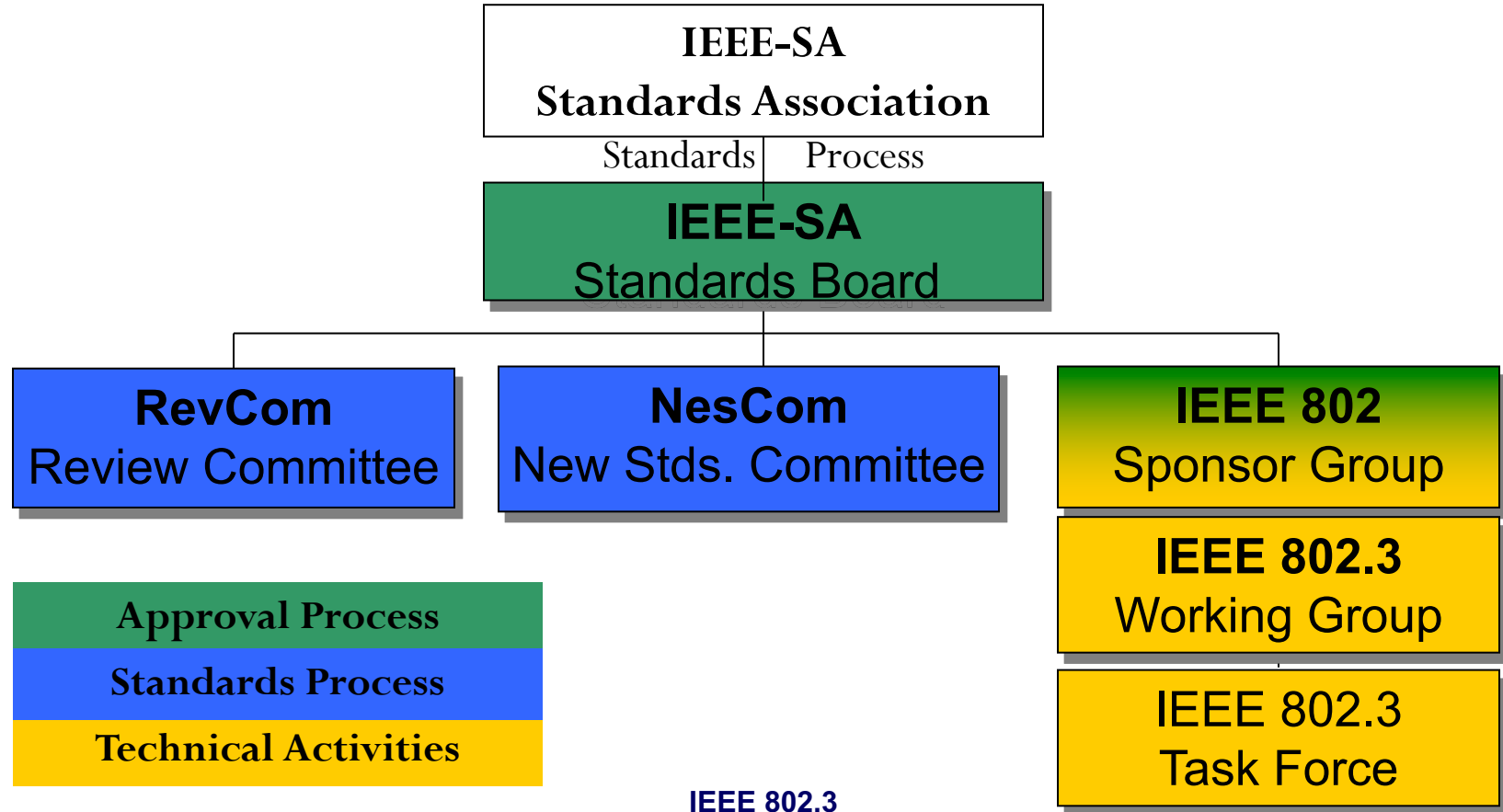
- Based upon IEEE 802.3 Rules
  - Foundation based upon Robert's Rules of Order
  - Anyone in the room may speak
  - Anyone in the room may vote
- **RESPECT**... give it, get it
- NO product pitches
- NO corporate pitches
- NO prices!!!
  - This includes costs, ASPs, etc. no matter what the currency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

# Attendance

- Tutorial Material on attendance tool
  - [http://ieee802.org/3/minutes/attendance\\_procedures.pdf](http://ieee802.org/3/minutes/attendance_procedures.pdf)
- Access details
  - URL: <http://imat.ieee.org/>
  - Use your imat login
    - (must be on meeting SSID – no VPN)



# IEEE Structure



# Important Bylaws and Rules

- **IEEE-SA Operations Manual**  
[http://standards.ieee.org/develop/policies/sa\\_opman/](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](http://ieee802.org/3/rules/P802_3_rules.pdf)

# Participation in IEEE 802 Meetings

All participation in IEEE 802 Working Group meetings is on an individual basis

- *Participants in the IEEE standards development individual process shall act based on their qualifications and experience.* ([https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1)
- *IEEE 802 Working Group membership is by individual; “Working Group members shall participate in the consensus process in a manner consistent with their professional expert opinion as individuals, and not as organizational representatives”.* ([http://ieee802.org/PNP/approved/IEEE\\_802\\_WG\\_PandP\\_v19.pdf](http://ieee802.org/PNP/approved/IEEE_802_WG_PandP_v19.pdf) section 4.2.1)
- You have an obligation to act and vote as an individual and not under the direction of any other individual or group. Your obligation to act and vote as an individual applies in all cases, regardless of any external commitments, agreements, contracts, or orders.
- You shall not direct the actions or votes of any other member of an IEEE 802 Working Group or retaliate against any other member for their actions or votes within IEEE 802 Working Group meetings, see [https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1.3 and [http://ieee802.org/PNP/approved/IEEE\\_802\\_WG\\_PandP\\_v19.pdf](http://ieee802.org/PNP/approved/IEEE_802_WG_PandP_v19.pdf) section 3.4.1, list item x

By participating in IEEE 802 meetings, you accept these requirements. If you do not agree to these policies then you shall not participate.

# Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- **Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:**
  - **“Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents**
  - **“Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)**
- **The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group**
- **Early identification of holders of potential Essential Patent Claims is strongly encouraged**
- **No duty to perform a patent search**

# Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

*<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>*

IEEE-SA Standards Board Operations Manual

*<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>*

Material about the patent policy is available at

*<http://standards.ieee.org/about/sasb/patcom/materials.html>*

**If you have questions, contact the IEEE-SA Standards Board Patent Committee  
Administrator at [patcom@ieee.org](mailto:patcom@ieee.org) or visit  
<http://standards.ieee.org/about/sasb/patcom/index.html>**

**This slide set is available at  
<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>**

# Call for Potentially Essential Patents

- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
  - Either speak up now or
  - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
  - Cause an LOA to be submitted

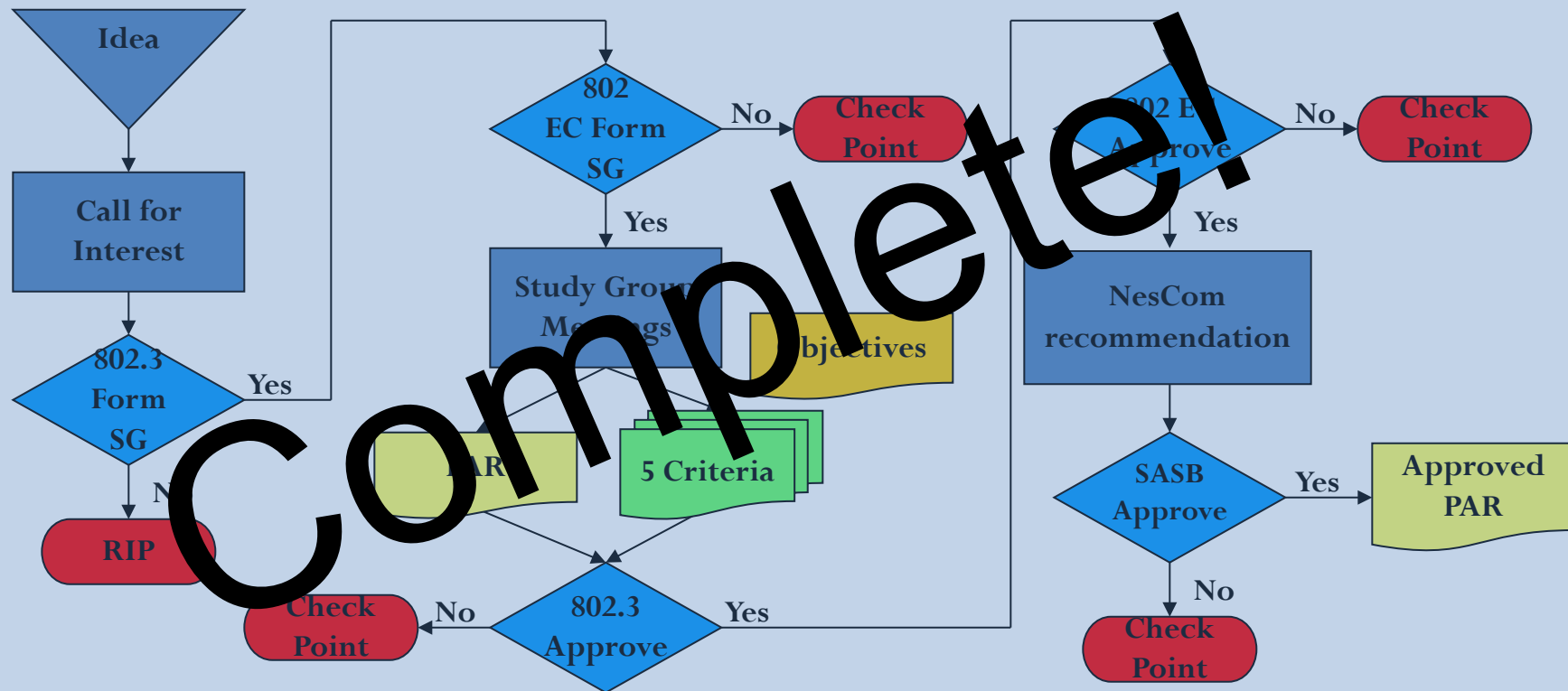
# Other Guidelines for IEEE WG Meetings

- **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.**

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See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and “Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy” for more details.

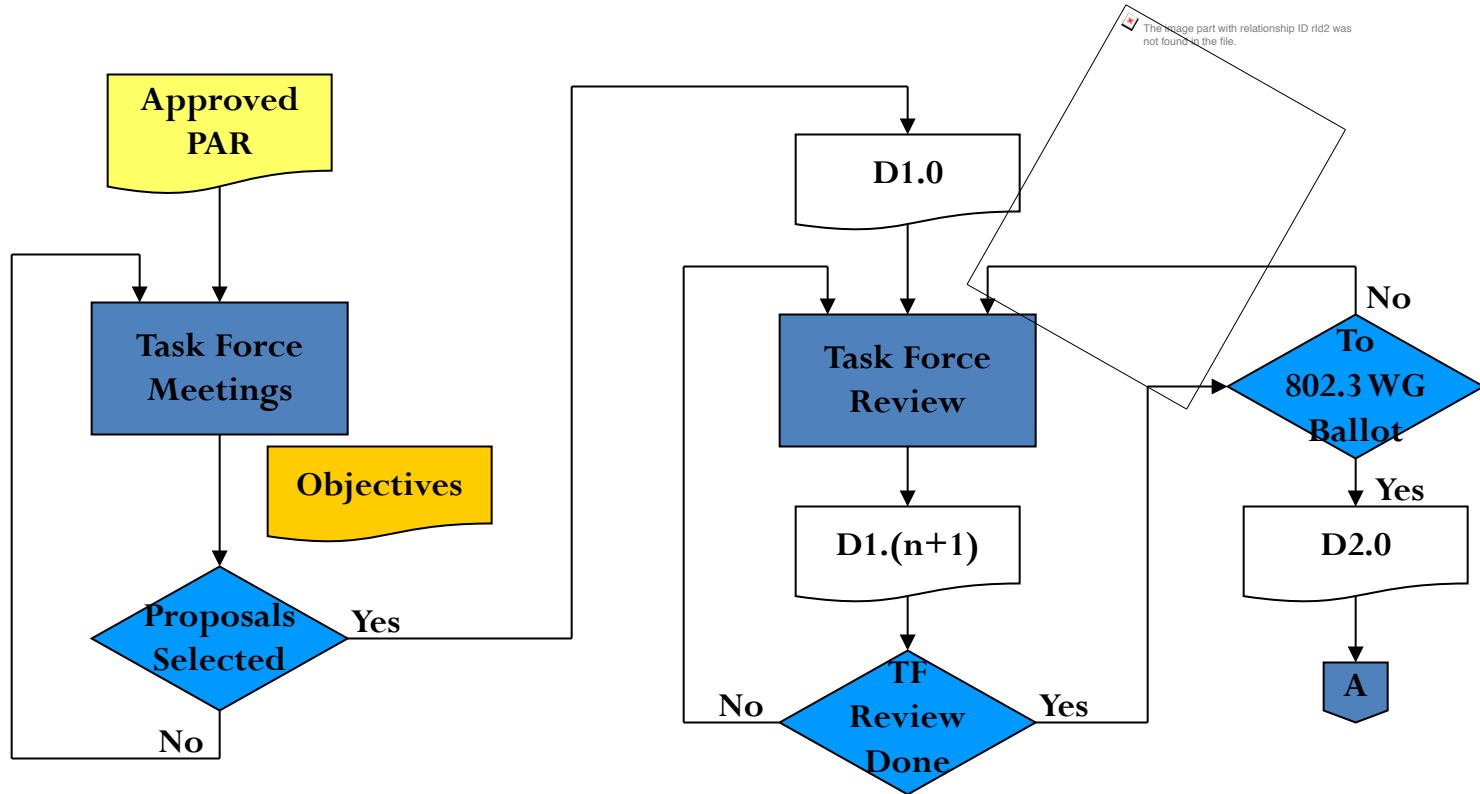
# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase



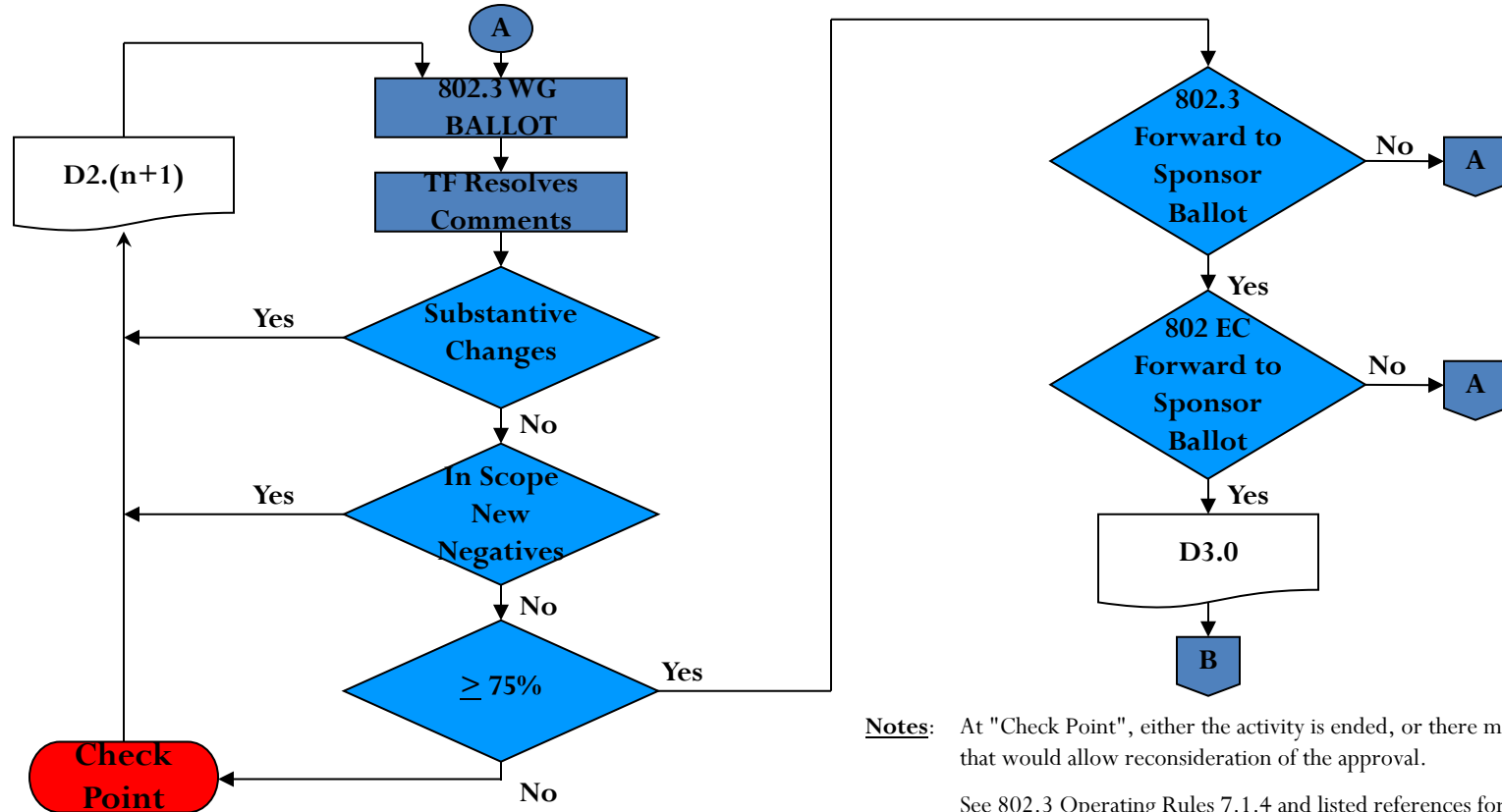
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.



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



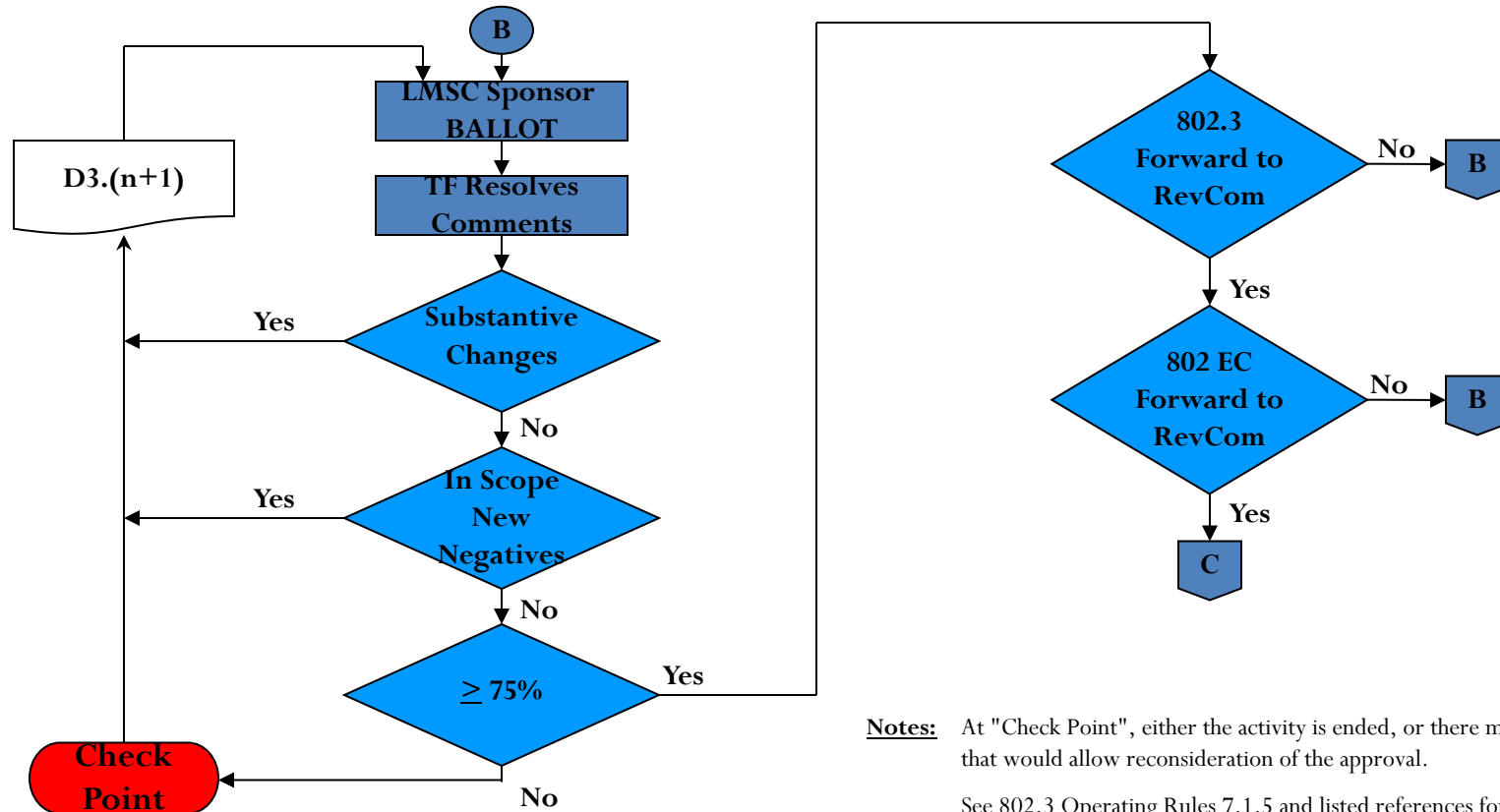
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

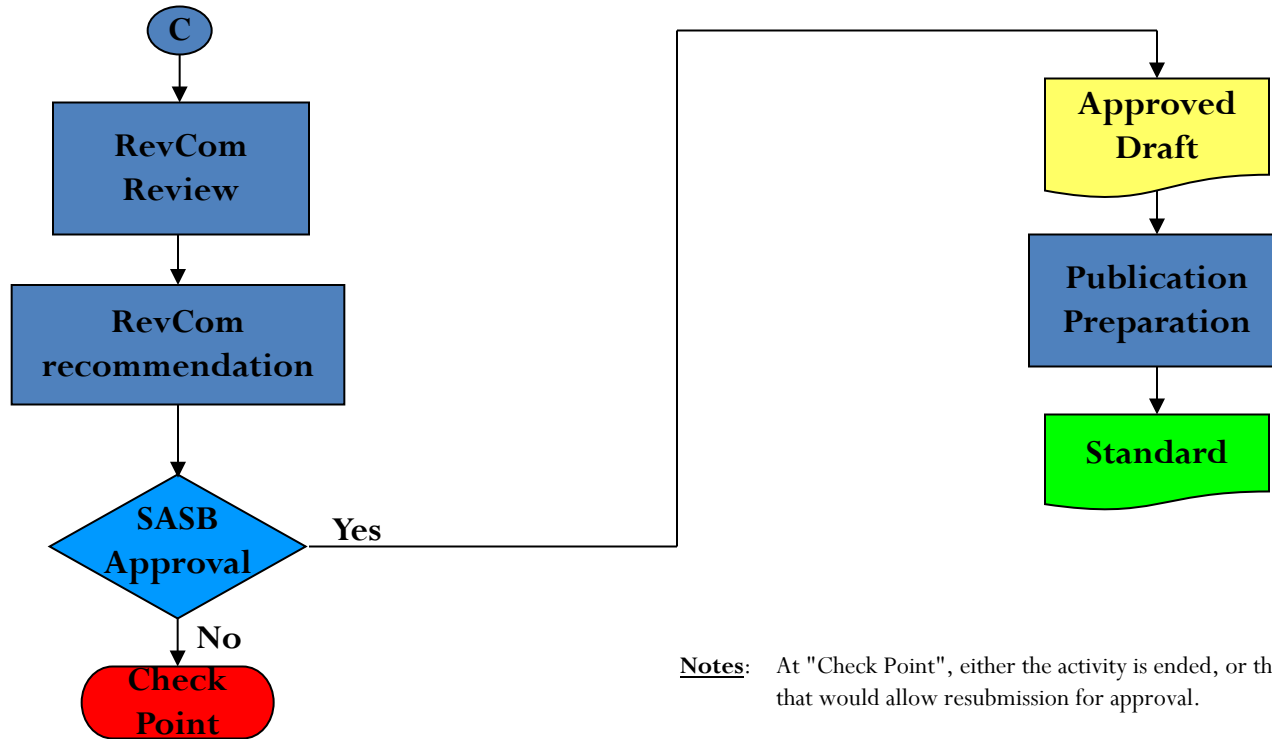
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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.

# Liaisons and Communications

Dec 2016: OIF to IEEE P802.3bs and P802.3cd regarding progress on OIF CEI-56G projects

- [http://www.ieee802.org/3/minutes/jan17/incoming/OIF\\_to\\_IEEE\\_P802d3bs\\_cd\\_Dec\\_2016.pdf](http://www.ieee802.org/3/minutes/jan17/incoming/OIF_to_IEEE_P802d3bs_cd_Dec_2016.pdf)
- Shared:
  - CEI-56G-LR-PAM4: oif2014.380.05
  - CEI-56G-VSR-PAM4: oif2014.230.09
  - CEI-56G-MR-PAM4: oif2014.245.09
- Informed:
  - OIF are sponsoring a FlexE Workshop on Jan 20 in San Jose
  - OIF 100G Serial Electrical Workshop on Thurs March 23 coincident with OFC.

# Ad hocs

Charter: to discuss topics towards supporting the developed objectives, PAR and CSD or for providing the Task Force with contributions to help it prepare for future decisions.

Chair: Kent Lusted, Intel

<http://www.ieee802.org/3/cd/public/adhoc/index.html>

- Expected to continue the regular biweekly cadence.
- Wednesdays @ 8am PT

# IEEE P802.3cd Task Force Approved Project Documents

- PAR
  - <http://www.ieee802.org/3/cd/P802.3cd.pdf>
- CSD
  - <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0060-02-ACSD-802-3cd.pdf>
- Objectives
  - [http://www.ieee802.org/3/cd/P802d3cd\\_objectives\\_v4.pdf](http://www.ieee802.org/3/cd/P802d3cd_objectives_v4.pdf)
- Timeline
  - [http://www.ieee802.org/3/cd/P802d3cd\\_timeline.pdf](http://www.ieee802.org/3/cd/P802d3cd_timeline.pdf)

# Objectives 1 of 2

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support optional Energy-Efficient Ethernet operation
- Provide appropriate support for OTN
- Support a MAC data rate of 50 Gb/s and 100 Gb/s
- Support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 50 Gb/s and 100 Gb/s operation
- Support a MAC data rate of 200 Gb/s
- Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 200 Gb/s operation



# Objectives 2 of 2

## **50 Gb/s Ethernet PHYs**

- Define single-lane 50 Gb/s PHYs for operation over
  - copper twin-axial cables with lengths up to at least 3m.
  - printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz.
  - MMF with lengths up to at least 100m
  - SMF with lengths up to at least 2km
  - SMF with lengths up to at least 10km

## **100 Gb/s Ethernet PHYs**

- Define a two-lane 100 Gb/s PHY for operation over
  - copper twin-axial cables with lengths up to at least 3m.
  - printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz.
  - MMF with lengths up to at least 100m
- Define a single lane 100 Gb/s PHY for operation over duplex SMF with lengths up to at least 500 m, consistent with IEEE P802.3bs Clause 124

## **200 Gb/s Ethernet PHYs**

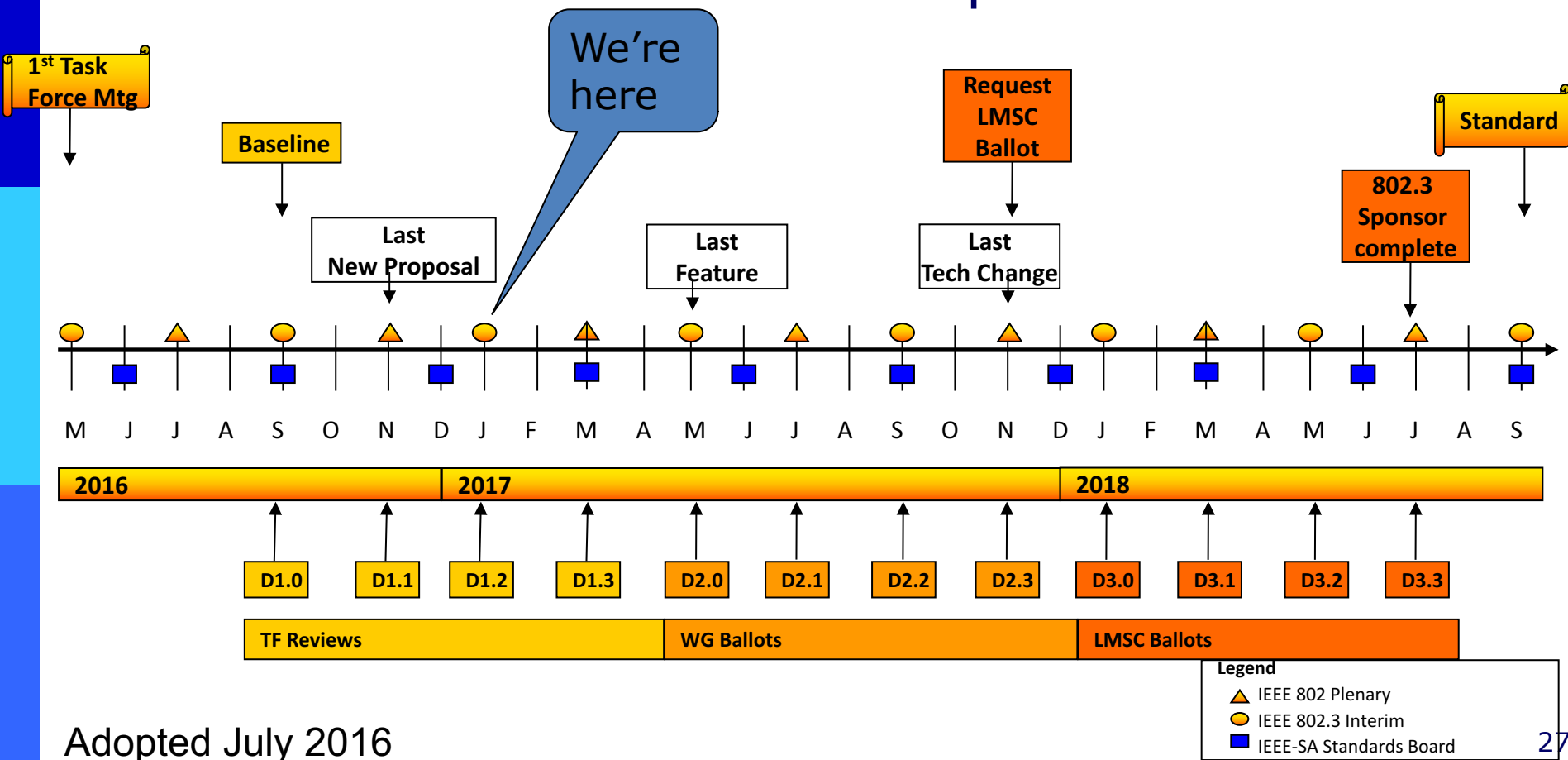
- Define four-lane 200 Gb/s PHYs for operation over
  - copper twin-axial cables with lengths up to at least 3m.
  - printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz.
- Define 200 Gb/s PHYs for operation over MMF with lengths up to at least 100m

# Baselines:

For reference, the set of adopted baselines are summarized:

<http://www.ieee802.org/3/cd/baselines/index.html>

# IEEE P802.3cd Task Force Adopted Timeline



# Moving to Working Group ballot approval in March

- D1.2 should meet the requirements necessary to move to Working Group ballot
  - Technically complete (no TBDs)
- Presubmit D1.2 ahead of March meeting
- Common practice is to encourage comments against the presubmitted draft to cause minimal changes when requesting this move to WG ballot
- We're considering having a usual comment period and still requesting approval to WG with changes
  - Avoid a dead meeting
  - Cleaner draft for WG review
  - Improving technical accuracy doesn't imply lack of technical completeness
  - If too many significant changes, withdraw request for approval

# D1.1 Task Force Review

- Draft 1.1 generated and sent out for Task Force recirculation Review:
  - Review Period Dec 2<sup>nd</sup> – Dec 16<sup>th</sup>
  - 211 comments received (E:70 ER:3 T:94 TR:44)
  - Comments and proposed responses: <http://www.ieee802.org/3/cd/comments/index.html>


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# Goals for the meeting

- Comment Resolution
- Review technical presentations
- Generate D1.2

# Meeting Map

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# Meeting Schedule – Wednesday & Thursday

\*

Wednesday

11-Jan-17

Time	Presenter	Affiliation	Title	File Name	Duration
1:00 PM	Mark Nowell	Cisco	Agenda and General Information	agenda_3cd_01_0117.pdf	0:40
1:40 PM	Kent Lusted	Intel	802.3cd Task Force Ad-hoc report	lusted_3cd_01_0117.pdf	0:10
1:50 PM	Matt Brown	APM	802.3cd Chief Editor's Report	brown_3cd_01_0117.pdf	0:10
2:00 PM	Comment Resolution (presentations as needed)				1:00
3:00 PM	Break				0:20
3:20 PM	Comment Resolution (presentations as needed)				2:40
6:00 PM	Break				1:00

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Thursday

12-Jan-17

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Mark Nowell	Cisco	Opening	agenda_3cd_01_0117.pdf	0:10
8:10 AM	Comment Resolution (presentations as needed)				2:20
10:30 AM	Break				0:20
10:50 AM	Comment Resolution (presentations as needed)				1:10
12:00 PM	Lunch				1:00
1:00 PM	Comment Resolution (presentations as needed)				2:00
3:00 PM	Break				0:20
3:20 PM	Comment Resolution (presentations as needed)				2:40
6:00 PM	Adjourn				1:00

Friday

13-Jan-17

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Mark Nowell	Cisco	Opening	0	0:10
8:10 AM	Comment Resolution/Motions as needed				2:20
10:30 AM	Break				0:20
10:50 AM	Comment Resolution/Motions as needed				1:10
12:00 PM	Lunch				1:00
1:00 PM	Comment Resolution/Motions as needed				2:00
3:00 PM	Adjourn				0:20

Note –Times listed are subject to change.

Updated versions will be captured with new filename versions

\* Wednesday – start after .3bs concludes or no later than 1pm

\*\* Thursday – two tracks



# Future Meetings & Ad hocs

- Ad-hoc meeting plans
  - Single on-going biweekly meetings, all topics (will cycle) – agendas will be published. 2hr duration.
  - Wed 8-10 Pacific
- See: <http://www.ieee802.org/meeting/index.html>
- March 2017 Plenary
  - Week of March 12<sup>th</sup>, 2017 – Vancouver, BC
- May 2017 Interim
  - Week of May 22, 2017 - New Orleans, LA
- July 2017 Plenary
  - Week of July 10<sup>th</sup>, 2017 - Berlin, Germany
- Sept 2017 Interim
  - Week of Sept 11, 2017 – NA location
- Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary Steve Carlson.



# Thank You!