

# Agenda and General Information

IEEE 802.3  
Next Generation  
100Gb/s Optical Ethernet Study Group

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AppliedMicro  
Atlanta, Georgia USA – 11/08/2011

# Agenda

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- *Appointment of Recording Secretary*
- Welcome and Introductions
- Approve Minutes of September Meeting
- Approve Agenda
- Goals for this meeting
- Reflector and Web
- Ground Rules
- IEEE
  - Structure
  - Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Liaisons and Communications
- Presentations
- Motions and Closing Business
- Future Meetings

# Study Group Decorum



- Photography or recording by permission only (5.3.3.4)
- Cell phone ringers off
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (2008 SASB Op Manual 5.3.3.5)
- 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 (enforcement procedures)

# Goals for the meeting

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- Establish high level goals/schedule for the group
- Solidify the “easy” objectives
- Define the areas where work is required
- Define a timeframe for closing on the tough objectives
- Lay the ground work for the next meeting

# Reflector and Web

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- To subscribe to the *Next Generation 100Gb/s Optical Ethernet* reflector, send an email to: [ListServ@ieee.org](mailto:ListServ@ieee.org)

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

**subscribe** stds-802-3-100GNGOPTX <yourfirstname> <yourlastname>  
**end**

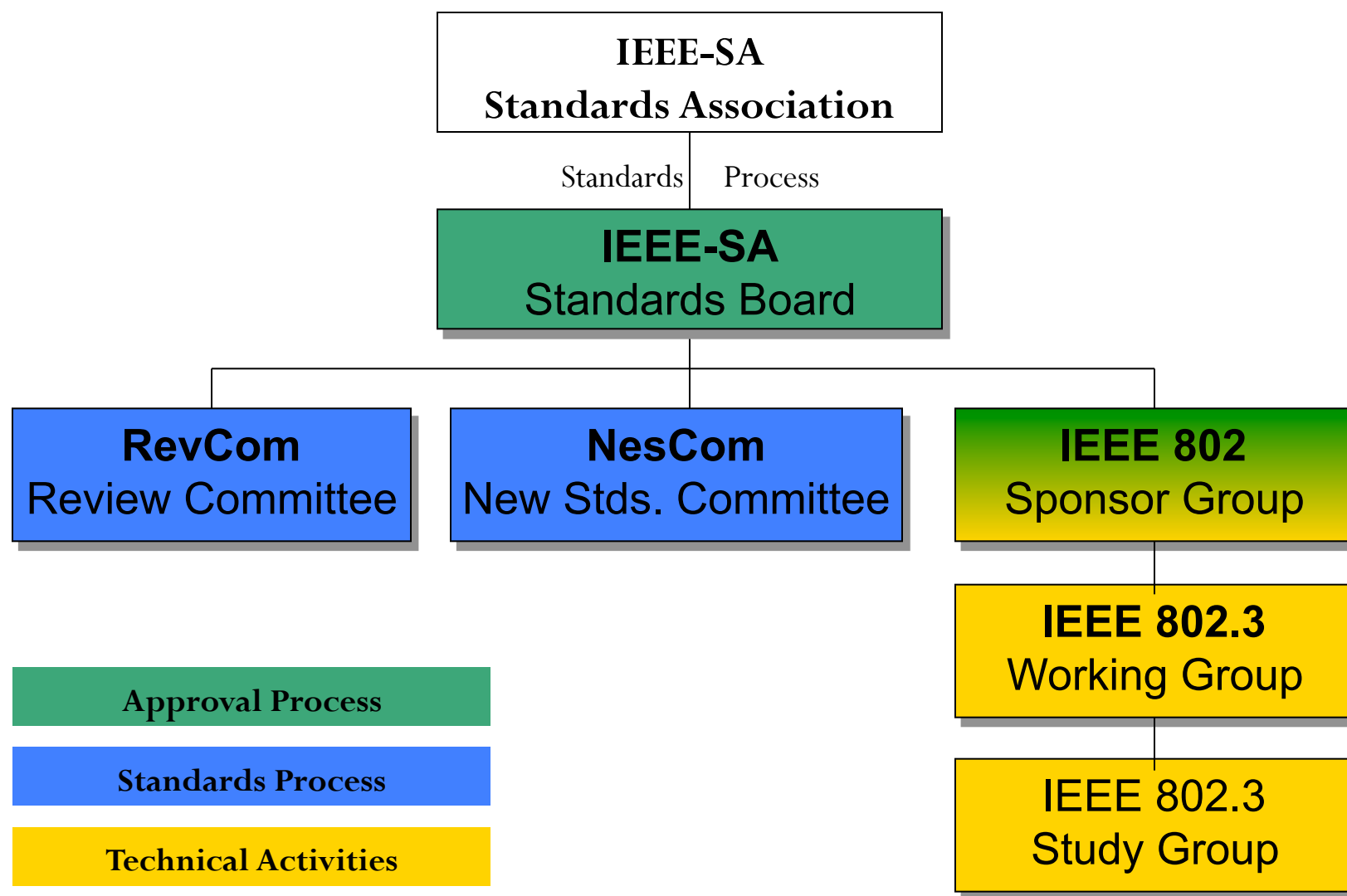
- Send *Next Generation 100Gb/s Optical Ethernet* reflector messages to:  
**STDS-802-3-100GNGOPTX@LISTSERV.IEEE.ORG**
- Study Group web page URL:  
**<http://www.ieee802.org/3/100GNGOPTX/index.html>**

# Ground Rules

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- 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 – Do unto others...
- NO product pitches
- NO corporate pitches
- NO prices!!!
  - This includes costs, ASPs, etc. no matter what the currency
- NO restrictive notices

# IEEE Structure



# Important Bylaws and Rules

- **IEEE-SA Operations Manual**  
<http://standards.ieee.org/sa/sa-om.pdf>
- **IEEE-SA Standards Board Bylaws**  
<http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf>
- **IEEE-SA Standards Board Operations Manual**  
<http://standards.ieee.org/guides/opman/sb-om.pdf>
- **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/PNP/2010-07/IEEE\\_802\\_LMSC\\_OM\\_approved\\_100716.pdf](http://www.ieee802.org/PNP/2010-07/IEEE_802_LMSC_OM_approved_100716.pdf)
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**  
[http://www.ieee802.org/PNP/2010-07/IEEE\\_802\\_LMSC\\_WG\\_PandP\\_approved\\_100716.pdf](http://www.ieee802.org/PNP/2010-07/IEEE_802_LMSC_WG_PandP_approved_100716.pdf)
- **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)



# Guidelines for IEEE-SA Meetings

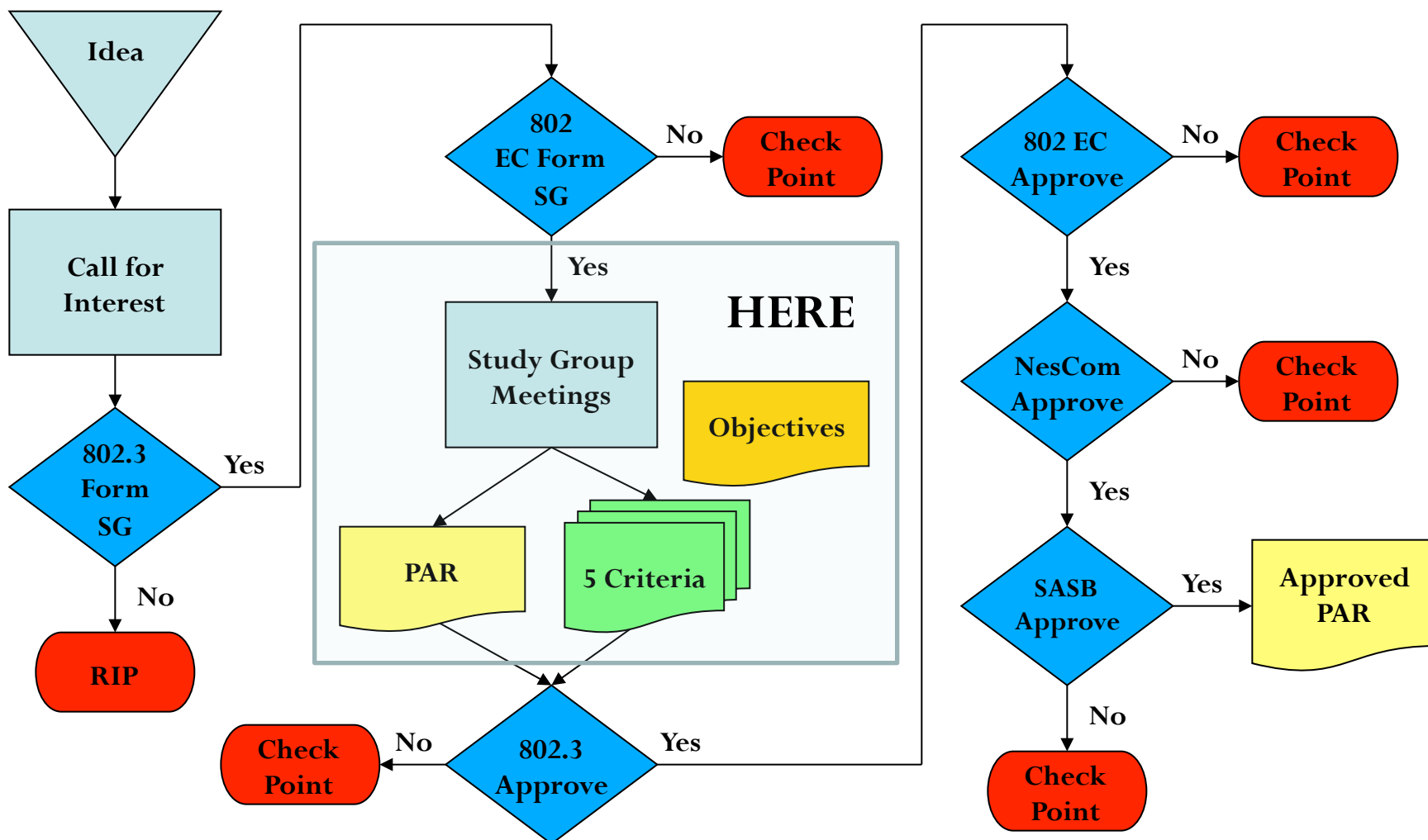
- All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
- Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
- Don't discuss specific license rates, terms, or conditions.
  - Relative costs, 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.

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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>

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.

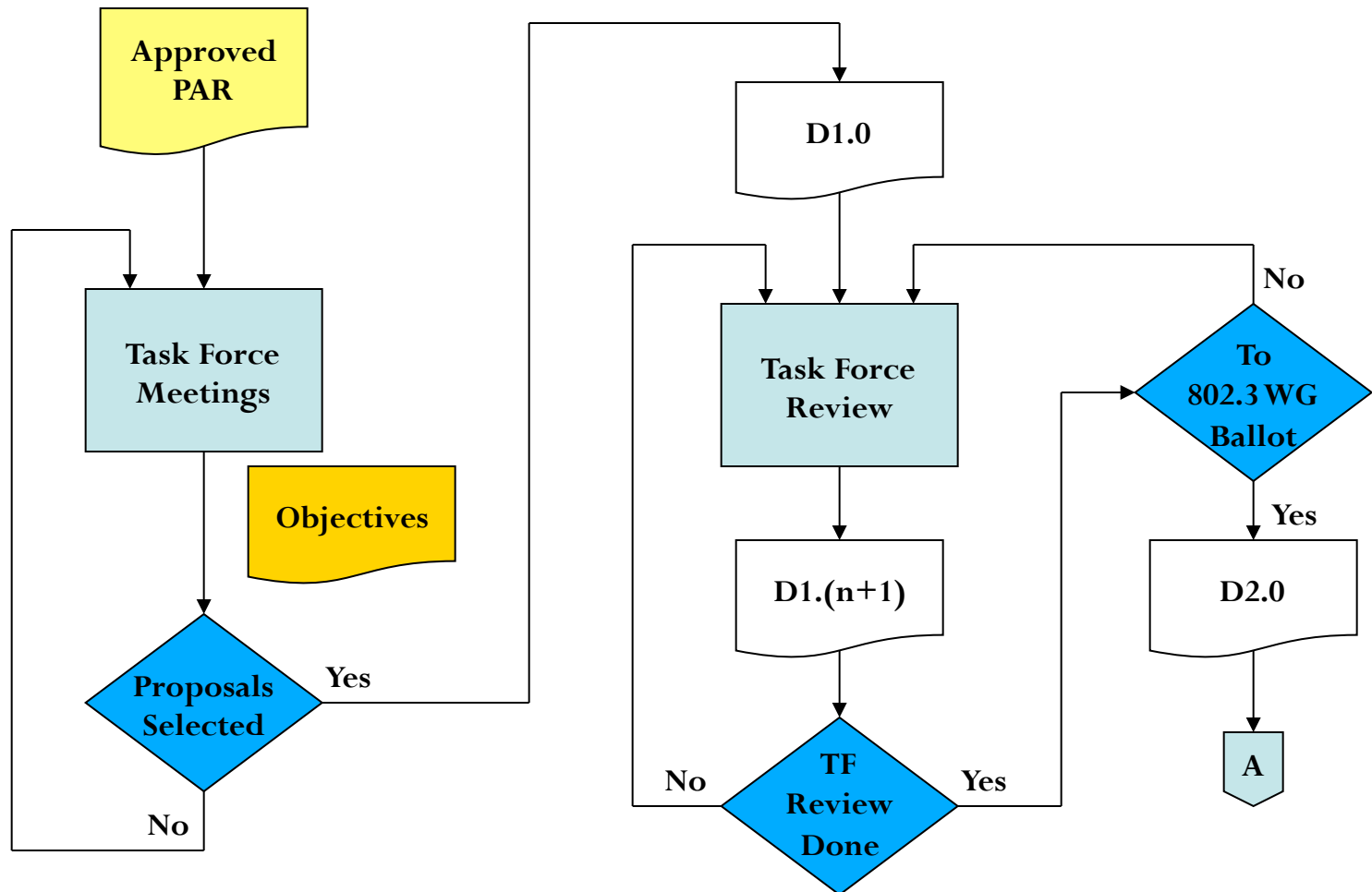
This slide set is available  
at <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>

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

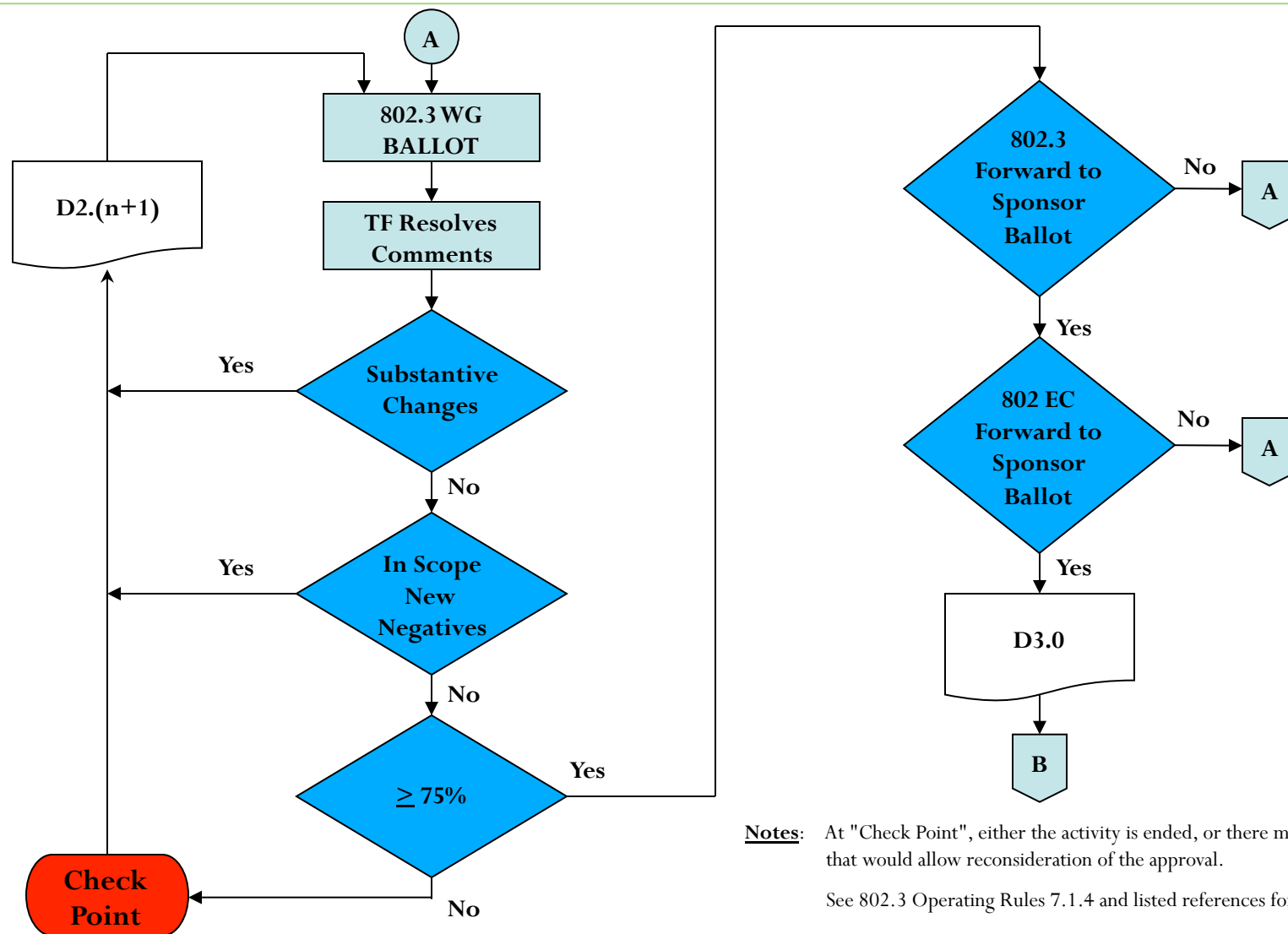


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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

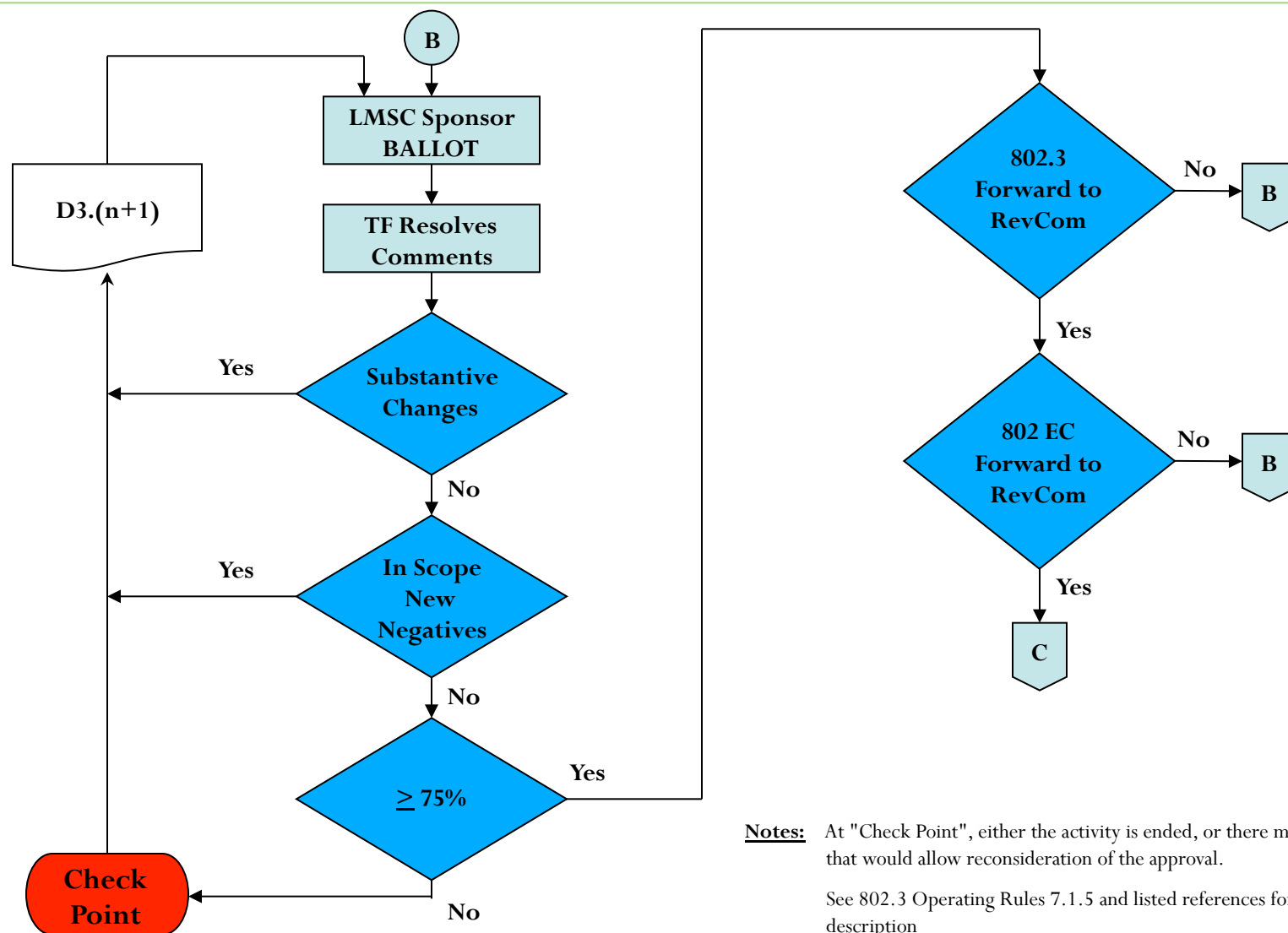


# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

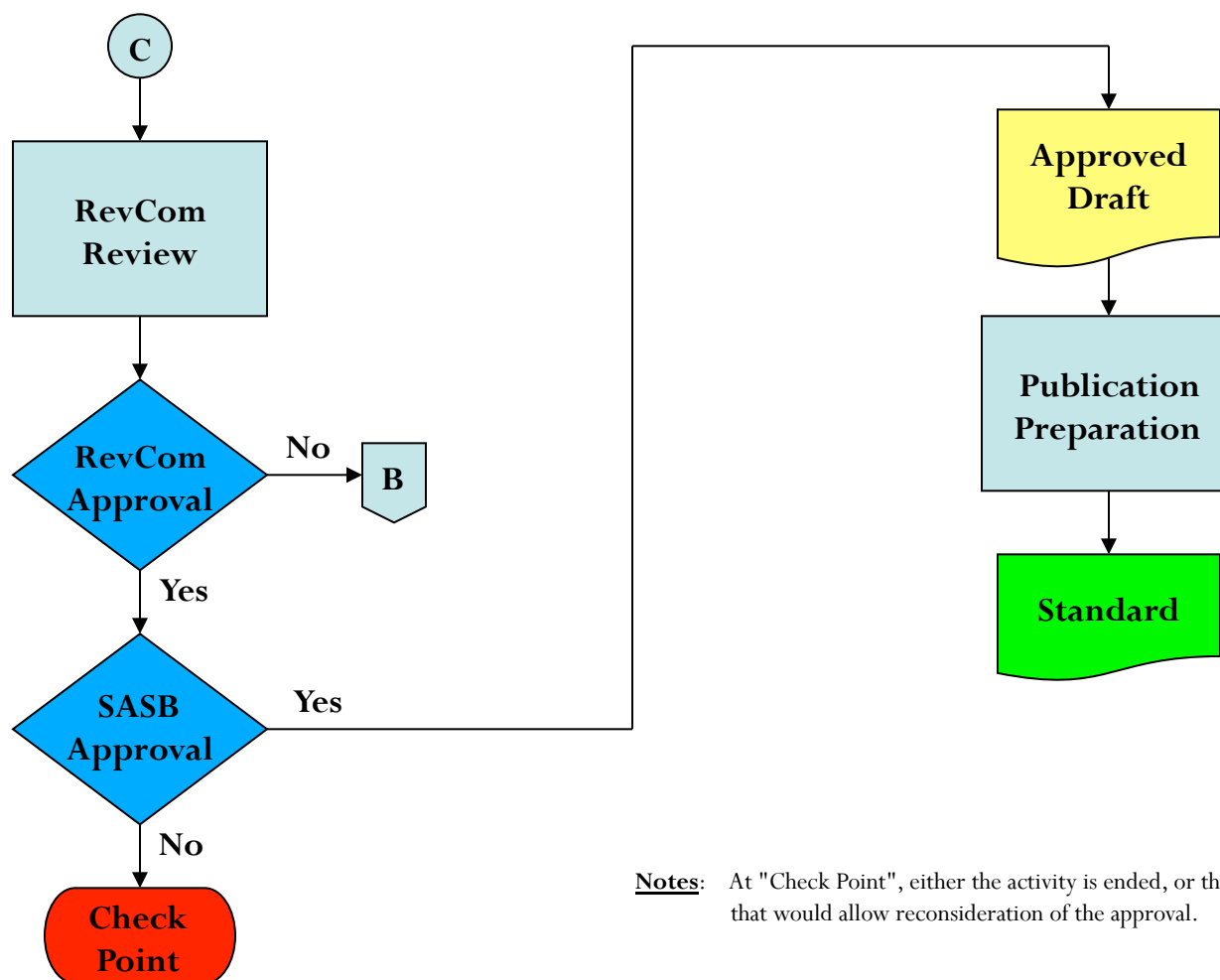
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



**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 reconsideration of the approval.

# The Study Group

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- Normal function is to draft a complete PAR and Five Criteria
- Provide a plenary week tutorial to the LMSC <if appropriate>.
- Gain approval at the WG 802.3, 802 SEC, IEEE NesCom and IEEE-SA Standards Board.
- SG only exists for 6 months
  - Extensions can be requested
  - Voted on by 802.3
  - Ratified by SEC
- Development of Objectives helps set the goals for the Task Force
- Consensus (>75%) required to move forward
- Not a goal – choosing a solution.

# Request for Formation of Study Group (as per July 2011 Plenary Motion)

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Move the IEEE 802.3 Working Group  
authorizes the formation of a study group  
for “***Next Generation 100 Gigabit Optical  
Ethernet***”



# Development of Objectives

## Example # 1 – IEEE P802.3ba Objectives

- Support full-duplex operation only
- Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
- Preserve minimum and maximum FrameSize of current 802.3 standard
- Support a BER better than or equal to  $10^{-12}$  at the MAC/PLS service interface
- Provide appropriate support for OTN
- Support a MAC data rate of 40 Gb/s
- Provide Physical Layer specifications which support 40 Gb/s operation over:
  - at least 10km on SMF
  - at least 100m on OM3 MMF
  - at least 7m over a copper cable assembly
  - at least 1m over a backplane
- Support a MAC data rate of 100 Gb/s
- Provide Physical Layer specifications which support 100 Gb/s operation over:
  - at least 40km on SMF
  - at least 10km on SMF
  - at least 100m on OM3 MMF
  - at least 7m over a copper cable assembly

# Development of Objectives

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## Example # 2 – IEEE P802.3bg Objectives

- Preserve the IEEE 802.3 / Ethernet frame format utilizing the IEEE 802.3 MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support a BER better than or equal to  $10^{-12}$  at the MAC/PLS service interface
- Support a MAC data rate of 40 Gb/s
- Use the 40GBASE-R PCS and PMA
- Use only existing electrical and logical interfaces from IEEE Std 802.3 as modified by IEEE P802.3ba
- Provide Physical Layer specification which support 40 Gb/s operation over at least 2 km on SMF.
- Provide optical compatibility with existing carrier 40Gb/s client interfaces (OTU3/STM-256/OC-768/40G POS).

# Development of Objectives

## Example # 3 – IEEE P802.3bj Objectives

- Support full-duplex operation only
- Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
- Preserve minimum and maximum FrameSize of current 802.3 standard
- Support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface
- Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.
- Define a 4-lane 100 Gb/s PHY for operation over links consistent with copper twin-axial cables with lengths up to at least 5m.

# Project Documentation

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- PAR
  - Title – What are we calling this project?
  - Scope – What is the focus of the project?
  - Purpose – Why do we want to do this?
  
- 5 Criteria
  - Broad Market Potential
  - Compatibility with IEEE Std. 802.3
  - Distinct Identity
  - Technical Feasibility
  - Economic Feasibility

# Liaisons and Communications

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- **Joint P802.3bj/100G Optical SG Joint Session**
  - 08:00 – 12:00 on Monday Nov 7<sup>th</sup>
  - An opportunity to work together and ensure alignment between the two projects.
  - Room location ( TBD )
- **OIF**
  - Ongoing communications between OIF and IEEE 802.3 initiated by IEEE P802.3ba project
  - In regards to OIF CEI-25G-LR, CEI-28G-SR, CEI-28G-VSR
  - Currently being operated through p802.3bj
- **ITU-T**
  - Proposed liaison activity to ensure alignment.

# Attendance

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- Tutorial Material on attendance tool
  - [http://ieee802.org/3/minutes/jul11/0711\\_imat.pdf](http://ieee802.org/3/minutes/jul11/0711_imat.pdf)
- URL (Valid for this meeting only)
  - URL: <<TBD>>
  - PASSWORD: << TBD >>

# Tuesday Presentations

Tuesday 08-Nov-11

Note –Times listed are subject to change.

Presentation Time	Presenter	Affiliation	Title	Filename
9:00 - 9:45	Dan Dove	AppliedMicro	Agenda & Objectives of Meeting	dove_01_1111_NG100GOPTX.pdf
9:45 - 10:20	Paul Kolesar	Commscope	Solution Set Analyzer	kolesar_01_1111_NG100GOPTX.xls
10:20 - 11:00	Jonathan King, Sudeep Bhoja	Finisar Broadcom	MMF links, EQ and FEC	king_01_1111_NG100GOPTX.pdf
11:00 - 11:20			BREAK	
11:20 - 12:00	Ali Ghiasi	Broadcom	Simulation 100GBase-SR4 Link	ghiasi_01_1111_NG100GOPTX.pdf
12:00 - 13:00			LUNCH	N/A
13:00 - 13:45	Jonathan King	Finisar	Reach Objective for 100G-SR4	king_02_1111_NG100GOPTX.pdf
13:45 - 14:20	Pete Anslow	Ciena	Objectives for Next Generation 100GbE Optical Interfaces	anslow_01_1111_NG100GOPTX.pdf
14:20 - 15:00	Chris Cole	Finisar	100GE Optics Proposal	cole_01_1111_NG100GOPTX.pdf
15:00 - 15:30			BREAK	N/A
15:30 - 16:15	Petar Pepeljugoski	IBM	Length objectives and potential PMDs to satisfy those objectives	pepeljugoski_01_NG100GOPTX.pdf
16:15 - 17:00	Ali Ghiasi	Broadcom	Investigation of Retimed and Unretimed Interfaces	ghiasi_02_1111_NG100GOPTX.pdf
17:00 - 18:00	Dan Dove	AppliedMicro	Open Discussion and Motions	N/A

# Wednesday Presentations

Wednesday 09-Nov-11

Note –Times listed are subject to change.

Presentation Time	Presenter	Affiliation	Title	Filename
9:00 - 9:15	Dan Dove	Applied Micro	RESUME	
9:15 - 10:00	Mark Nowell	Cisco	System OEM design guidelines for chip to module interfaces	nicholl_01_1111_NG100GOPTX.pdf
10:00 - 10:30	Mike Dudek	Qlogic	Marrying Copper and Optical	dudek_01_1111_NG100GOPTX.pdf
10:30 - 11:00	Jack Jewell	GreenVCSEL	Multi-generational mid-range optical links	jewell_01_1111_NG100GOPTX.pdf
11:00 - 11:30			BREAK	
11:30 - 12:00	Mark Nowell	Cisco	Considerations for NG 100G SMF objective	nowell_01_1111_NG100GOPTX.pdf
12:00 - 13:00			LUNCH	
13:00 - 13:45	John Petrilla	Avago Technologies	100G Next Gen 2 km SM PMD	petrilla_01_1111_NG100GOPTX.pdf
13:45 - 14:20	J. Anderson	Opnext	1300nm Optics for Short Reach SMF Application	anderson_01_1111_NG100GOPTX.pdf
14:20 - 15:00	Tom Palkert	Luxtera	Next Gen 100G Interconnect Technical feasibility using Silicon Photonics	palkert_01_1111_NG100GOPTX.pdf
15:00 - 15:30			BREAK	
15:30 - TBD	Dan Dove	Applied Micro	Motions, Discussion, Wrap-Up*	dove_02_1111_NG100GOPTX.pdf*

\* Note: If 40G Presentations are authorized by the Study Group, Final Wrap-Up will be moved to Thursday



# Thursday Presentations

Thursday 10-Nov-11

Note –Times listed are subject to change.

Presentation Time	Presenter	Affiliation	Title	Filename
9:00 - 9:15	Dan Dove	AppliedMicro	RESUME	
9:15 - 9:45	Pete Anslow	Ciena	Objective for Next Generation 100GbE Optical Interfaces SG with scope expanded to include 40GbE	anslow_02_1111_NG100GOPTX.pdf
9:45 - 10:20	Gary Nicholl	Cisco	Need for a 40km 40GE SMF Interface	nicholl_02_1111_NG100GOPTX.pdf
10:20 - 10:40			BREAK	
10:40 - 11:10	J. Anderson C. Cole E. Tsumura	Opnext Finisar SEI	Technical Feasibility of 40GBASE-ER4 PMD	TBD
11:10 - 12:00	Dan Dove	AppliedMicro	Wrap-Up and Discussion	dove_02_1111_NG100GOPTX.pdf

# Meeting Map

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- TBD (published at meeting)

# Future Meetings

- See: <http://www.ieee802.org/3/interims/index.html>
- **Week of January 23, 2012**
  - IEEE P802.3 interim session  
All IEEE 802.3 Task Force and Study Groups will meet
  - Hosted by Ethernet Alliance
    - Fairmont Newport Beach
    - Newport Beach, CA USA
- **Monday, March 12th through Thursday, March 15th, 2012**
  - Hilton Waikoloa Village
  - Big Island, Hawaii
  - USA
- **Monday, May 14<sup>th</sup> through Thursday, May 17<sup>th</sup>, 2012**
  - IEEE P802.3 interim session  
All IEEE 802.3 Task Force and Study Groups will meet
  - Hosted by Cisco
    - Venue TBD
- Anyone interested in hosting a meeting contact me.

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# Thank You!