Time Synchronization Study Group
Agenda and General Information

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Agenda

- Welcome and Introductions
- Appoint/Volunteer Recording Secretary
- Goals for this Meeting
- Reflector and Web
- Ground Rules
- IEEE
  - Structure
  - Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Presentations
- Future Meetings

Goals for this Meeting

- **To go over IEEE process and general TSSG information**
  - Email reflectors, Web page, Plenary and Interim meetings, voting
  - What is the IEEE SA standards process?
    - Study Groups
    - PAR
    - Five Criteria
    - Goals and Objectives
- **To hear presentations**
  - Meet the participants in the TSSG
  - Discuss how TSSG will work with 802.1, 802.3az, and 802.3ba
  - Discuss the relevant IEEE Stds – IEEE-1588 and IEEE P802.1AS
  - Discuss other applications for Time Sync
- **To build consensus**
  - Goals and Objectives

Reflector and Web

To subscribe to the Time Synchronization Study Group send an email containing the following text in the body of the message to:

subscribe stds-802-3-time <yourfirstname> <yourlastname>

to

ListServ@ieee.org

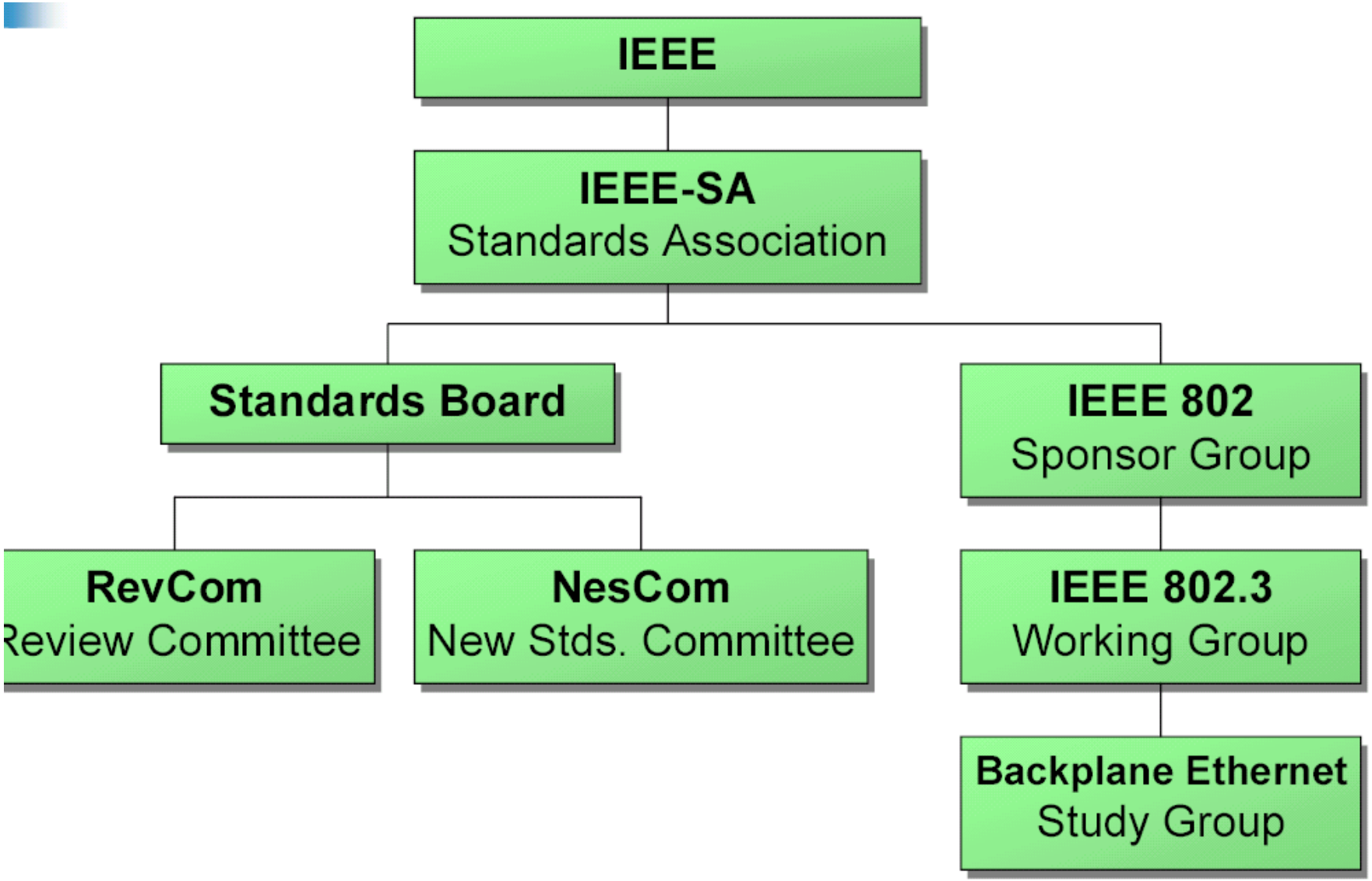
Time Synchronization Study Group web page URL:

http://www.ieee802.org/3/time_adhoc/

Ground rules

- **802.3 Rules apply**
  - 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

IEEE Standards Structure



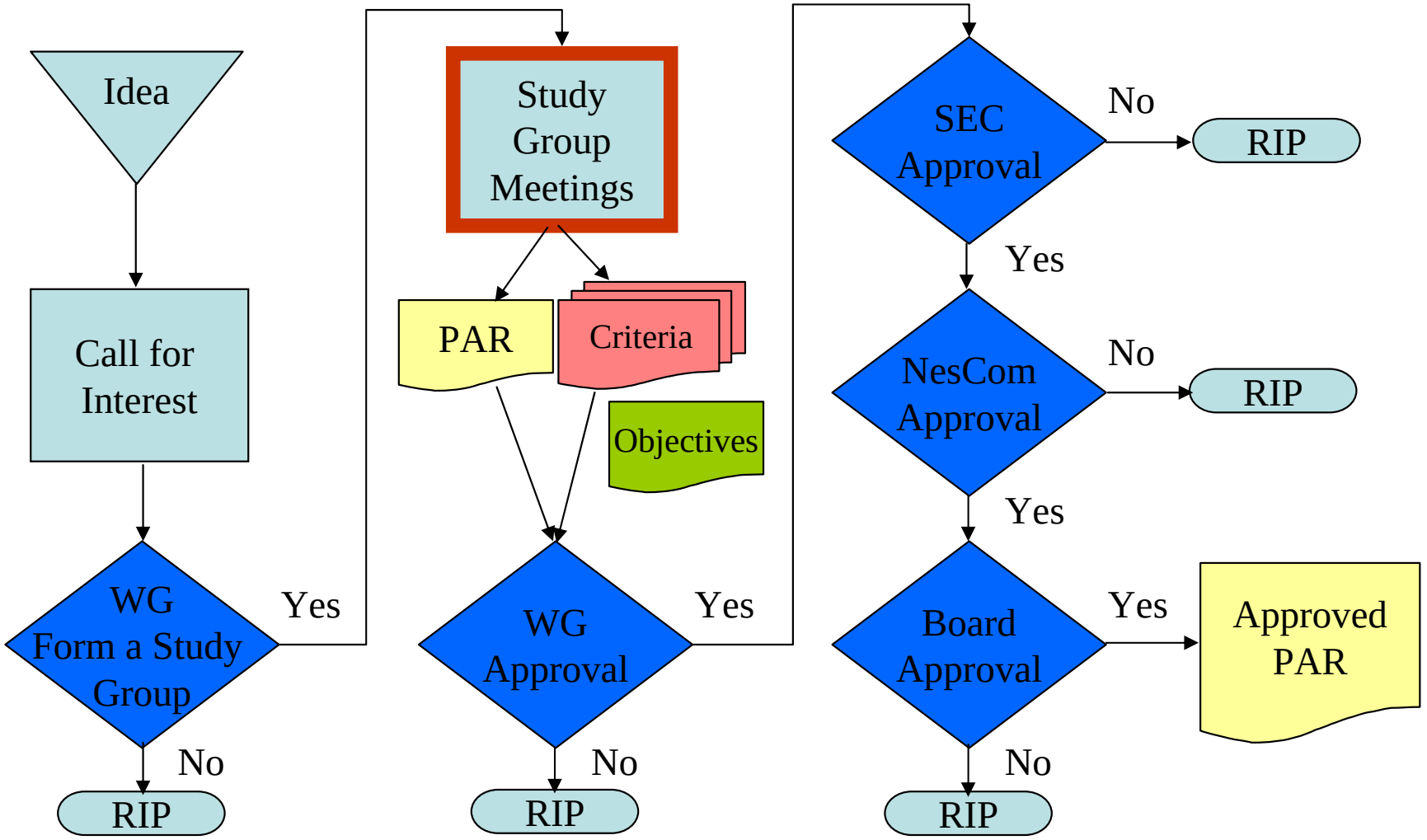
Bylaws and Rules

- Bylaws of the IEEE Standards Association (IEEE-SA):
- http://standards.ieee.org/sa/sa-bylaws.pdf
- Bylaws of the IEEE-SA Standards Board:
- http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf
- IEEE LAN/MAN Standards Committee (LMSC)
- Operating Rules:
- http://www.ieee802.org/rules.pdf
- IEEE 802.3 Working Group Operating Rules:
- http://www.ieee802.org/3/rules/
- IEEE SA Patent Policy
- http://www.ieee802.org/3/patent.html

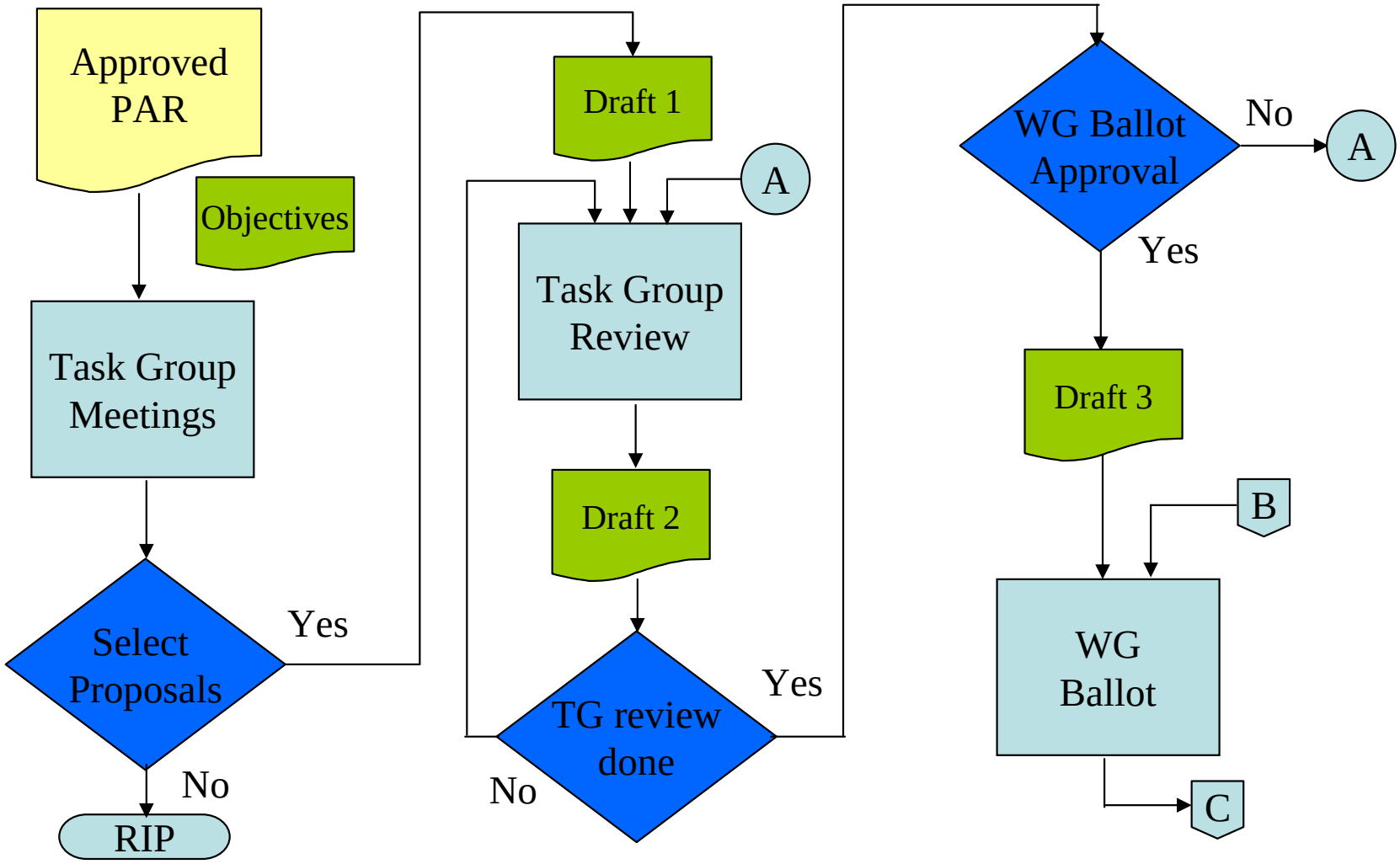
Patent Policy

- **http://standards.ieee.org/board/pat/pat-slideset.ppt**

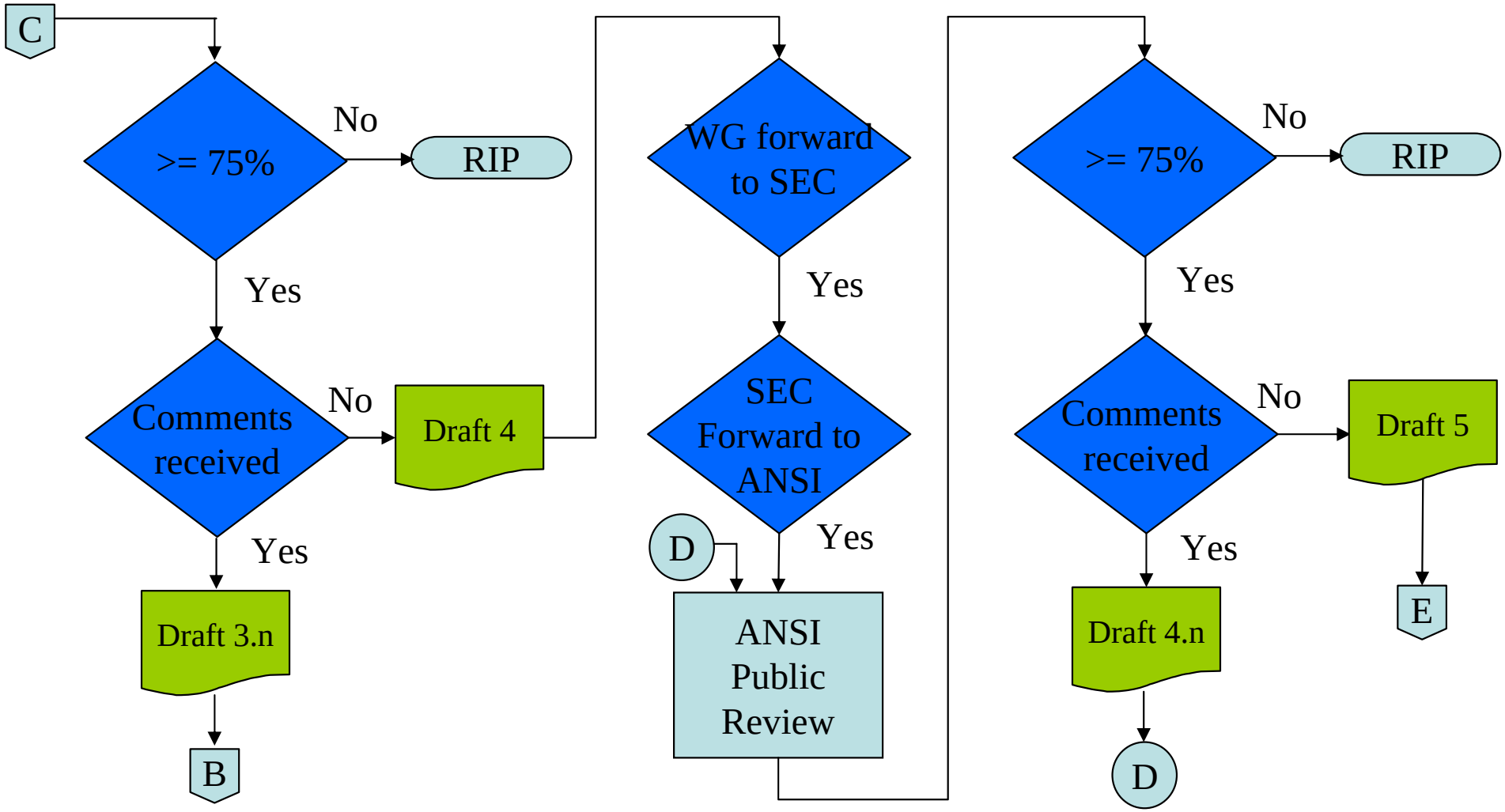
Standards Process



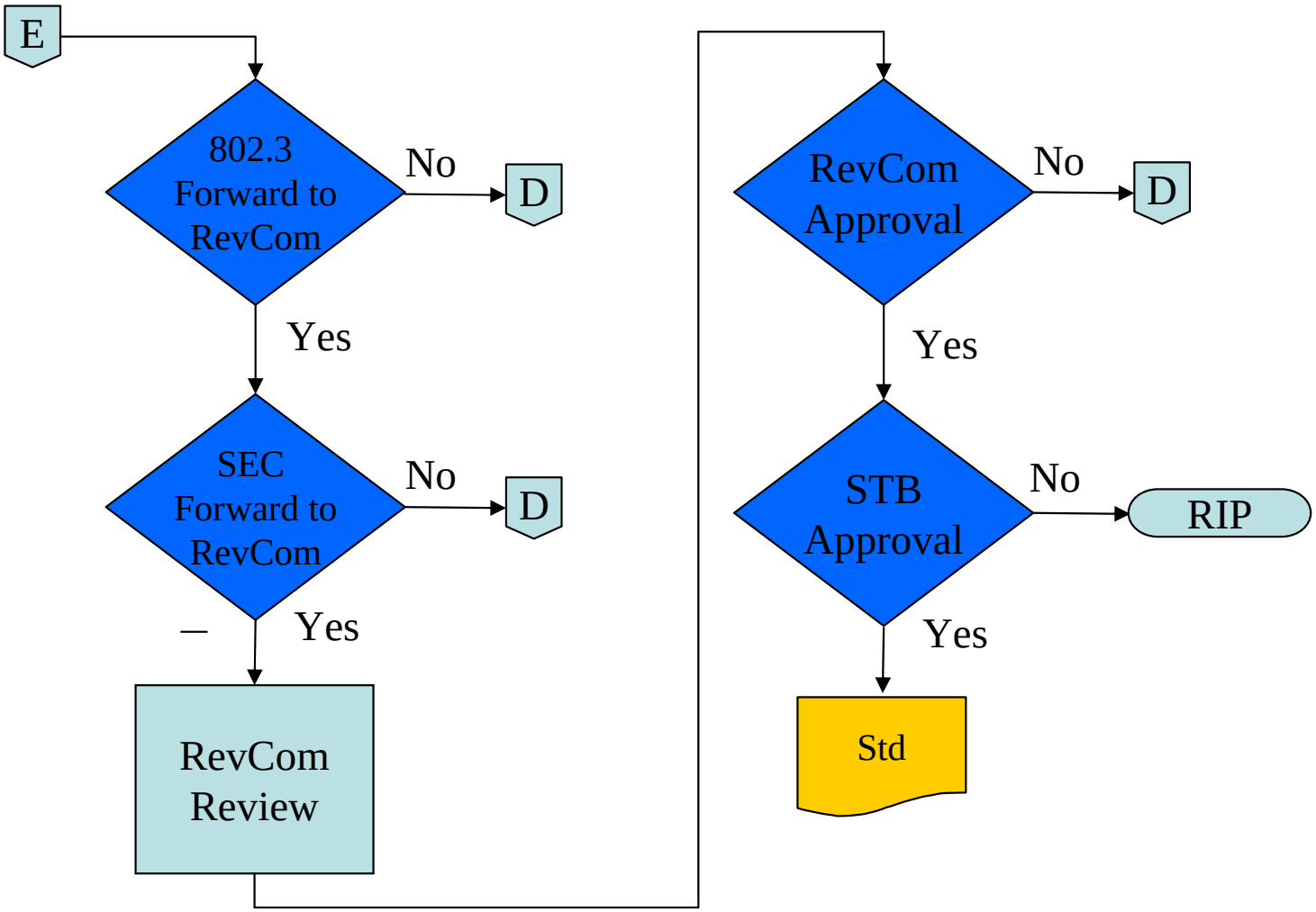
Standards Process



Standards Process



Standards Process



Study Group

- Function is to draft a PAR and 5 criteria and objectives
- Gain approval at WG 802.3, 802 SEC, IEEE NesCom and IEEE Stds. 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
- Developing consensus
  - Education helps build consensus
  - Consensus (> 75%) required to move forward

Study Group

- Study Group NON-FUNCTION: Chose a solution

SCOPE from CFI (as of 03/09)

Support in 802.3 for IEEE 802.1AS by providing an accurate indication of the transmission and reception initiation times of certain packets

Project Authorization Request (PAR)

- Title
  - Media Access Control (MAC) service interface and management parameters to support time synchronization protocols.
- Scope:
  - Amend IEEE Std 802.3-2008 to extend the Media Access Control service interface and add management parameters to provide support for the IEEE 802.1AS time synchronization protocol.
- Purpose
  - Why do we want to do this

PAR Motion

- Adopt the PAR (P802_3bf_PAR.pdf) and forward to the 802.3 WG and the EC for consideration at the November 2009 Plenary.
- M: Vetteth
- S: Teener
- 75%
- Y: 13 N: 0 A: 0
- Passes

The 5 Criteria

Broad Market Potential

- Broad set of applications
- Multiple vendors, multiple users
- Balanced cost, LAN vs. attached stations
- Ethernet can be applied in many new applications if a time synchronization capability is added. Audi-Video Bridging is well understood, as it started in 802.3 as the Residential Ethernet SG. Other potential new applications include, wireless backhaul, industrial control, SmartGrid, (add more here if desired)
- Add support for TSSG from slide set
- The introduction of time synchronization protocols will not change the cost balance. (mkt. data on CE?)

Compatibility

a) IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management, and Interworking documents as follows: 802. Overview and Architecture, 802.1D, 802.1Q, and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.

b) Each standard in the IEEE 802 family of standards shall include a definition of managed objects that are compatible with systems management standards.

c) Compatibility with IEEE Std 802.3

d) Conformance with the IEEE Std 802.3 MAC

e) Managed object definitions compatible with SNMP

- As an amendment to 802.3 the proposed project will remain in conformance with IEEE 802.1 Overview and Architecture as well as the bridging standards IEEE Std 802.1D and IEEE 802.1Q, and supports of IEEE P802.1AS.
- As an amendment to IEEE 802.3, the proposed project will follow the existing format and structure of IEEE 802.3 MIB definitions by providing a protocol-independent specification of managed objects.
- Time synchronization capable interfaces will interoperate with legacy interfaces though the time synchronization capability will not be active.
- Support for the time synchronization will be limited to the full-duplex operation mode of the IEEE Std 802.3 MAC.
- The project will include a protocol independent specification of managed objects with SNMP management capability to be provided in the future by and amendment to the yet-to-be-approved IEEE P802.3.1.

Distinct Identity

- Substantially different from other IEEE 802 standards
- One unique solution per problem (not two solutions to a problem)
- Easy for the document reader to select the relevant specification
- Ethernet currently has no time synchronization capability. This project does not overlap IEEE 802.1AS but in fact complements it.
- We will pick a single solution.
- Time synchronization will be defined as an optional extension to existing interfaces and management.

Technical Feasibility

- Demonstrated system feasibility
- Proven technology, reasonable testing
- Confidence in reliability
- This functionality has been successfully implemented and demonstrated by numerous parties for a number of years. The technology has been deployed with time synchronization capabilities.
- Nothing in the project is expected to decrease the reliability of Ethernet. Laboratory work and existing implementations demonstrate the testability of time synchronization. (Cite to MT journal article)

Economic Feasibility

- Known cost factors, reliable data
- Reasonable cost for performance
- Consideration of installation costs
- Time synchronization will require a small number of additional logic elements. The cost, reliability and performance are well understood. This project will not affect the installation cost of Ethernet.

Criteria

- Move to adopt the responses to the 5 Criteria as given in 0909_tssg_agenda.pdf with editorial license given to the TSSG Chair to edit as necessary.
- M: Frazier
- S: Marek
- 75%
- Y: 12 N: 0 A: 0
- Passes

Objectives

- Objectives are an 802.3 construct
- They are a “contract” between the Task Force and the Working Group – the “deliverables”
- The TSSG will build by consensus the project objectives

Objectives

Provide an accurate indication of the transmission and reception initiation times of certain packets as required to support IEEE P802.1AS.

Objectives

Move to adopt the Objective as written in TSSG agenda (0909_tssg_agenda.pdf)

M: H. Frazier
S: Anoop Vetteth
Y: 12 N: 0 A: 0 Passes
Technical 75%

Presentations

- “Timestamp Provisioning in IEEE 802.3”, Yuanqiu Luo, Frank Effenberger, Huawei Technologies USA

Work towards November Plenary

- Prepare to present PAR, 5C and objective to 802.3

This Week's Schedule

- IEEE 802 Interim Meeting, September 21 - 24
  - TSSG Monday