IEEE 802.3
Higher Speed Study Group

Agenda and General Information

Dallas, Tx
November, 2006

Agenda

- **Welcome and Introductions**
- **Appoint/Volunteer Recording Secretary**
- **Approve Agenda**
- **Approve Meeting Minutes**
- **Goals for this Meeting**
- **Ground Rules**
- **Reflector and Web**
- **IEEE**
  - Structure
  - Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- **Liaison Letters**
- **Ad Hoc Reports**
- **Presentations**
- **Discussion and Motions**
- **Future Meetings**

Request for Formation of HSSG (as per July '06 Plenary Motion)

Move the IEEE 802.3 Working Group requests formation of a "Higher Speed Study Group" to evaluate definition of greater than 10 Gb/s MAC data rate and related PHY capability to IEEE Std 802.3. The Study Group may recommend one or more PARs.

IEEE 802.3 HSSG Organization

- **Study Group Chair:**
  - ❏ John D'Ambrosia (jdambrosia@force10networks.com)
- **Web Master**
  - ❏ Frank Chang (ychang@vitesse.com)

- **"Reach" Ad Hoc Chair**
  - ❏ Andy Moorwood (amoorwood@extremenetworks.com)
- **"Fiber Optic" Ad Hoc Chair**
  - ❏ Dan Dove (dan.dove@hp.com)

Goals for this Meeting

- Hear presentations related to 5 Criteria, Goals, and Objectives

- Start developing consensus on:
  - HSSG Objectives
  - Project Authorization Request (PAR)
  - 5 Criteria Responses

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
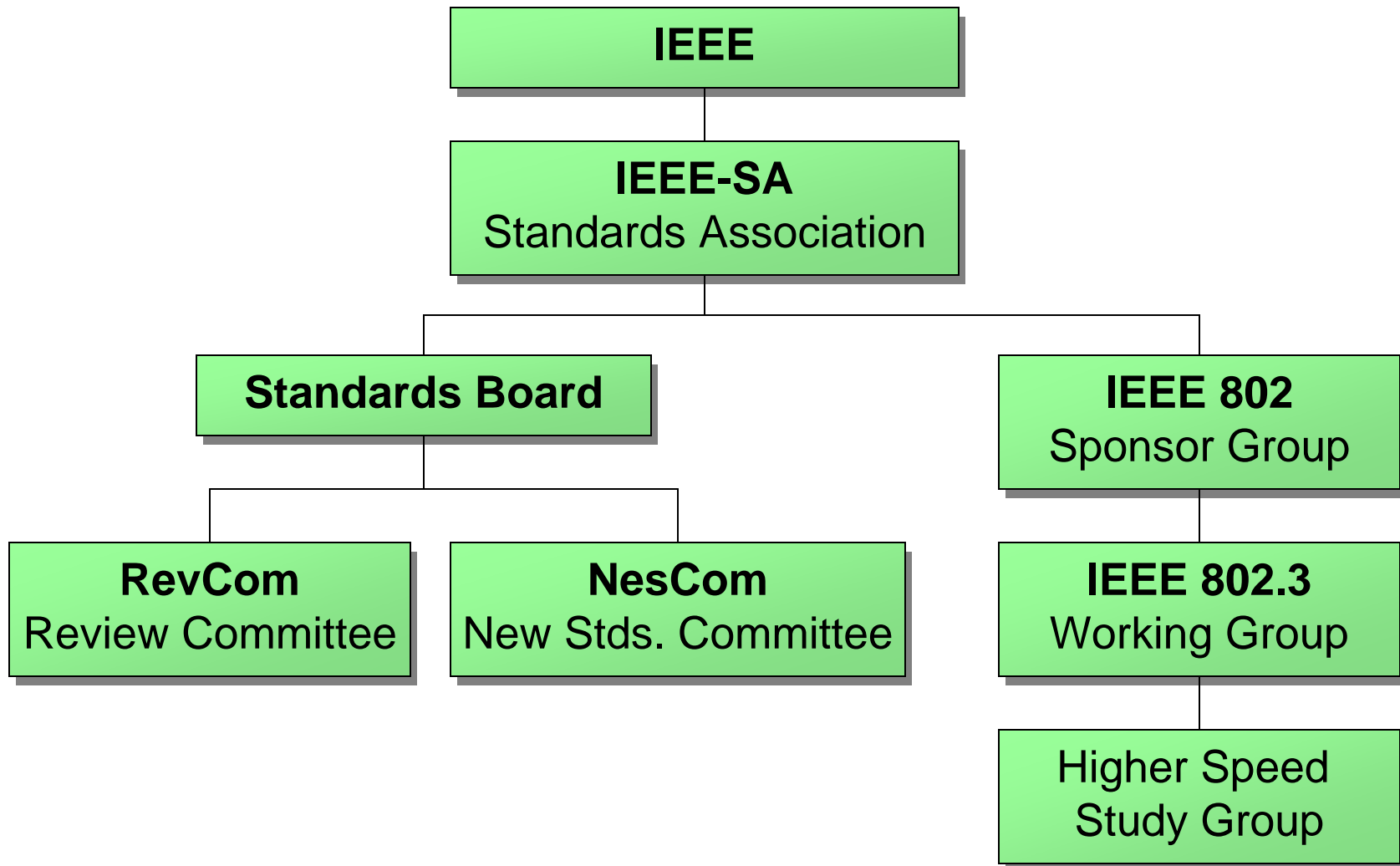- **NO restrictive notices**

Reflector and Web

- To subscribe to the HSSG reflector, send an email to:
  - *ListServ@ieee.org*

  with the following in the body of the message (do not include "<>"):
  - *subscribe stds-802-3-hssg <yourfirstname> <yourlastname>*
  - *end*

- Send HSSG reflector messages to:
  - *STDS-802-3-HSSG@listserv.ieee.org*

- For complete instructions on reflector usage, subscription, and unsubscription:
  - *http://www.ieee802.org/3/hssg/reflector.html*

- HSSG web page URL:
  - *http://www.ieee802.org/3/hssg/*

IEEE Structure

```
                          ┌─────────────────┐
                          │      IEEE       │
                          └─────────────────┘
                                   │
                          ┌─────────────────┐
                          │     IEEE-SA     │
                          │ Standards Assoc.│
                          └─────────────────┘
                                   │
              ┌────────────────────┴────────────────────┐
     ┌─────────────────┐                        ┌─────────────────┐
     │ Standards Board │                        │    IEEE 802     │
     │                 │                        │  Sponsor Group  │
     └─────────────────┘                        └─────────────────┘
              │                                          │
       ┌──────┴──────┐                          ┌─────────────────┐
┌────────────┐ ┌────────────┐                   │   IEEE 802.3    │
│   RevCom   │ │   NesCom   │                   │  Working Group  │
│ Review     │ │ New Stds.  │                   └─────────────────┘
│ Committee  │ │ Committee  │                            │
└────────────┘ └────────────┘                   ┌─────────────────┐
                                                │  Higher Speed   │
                                                │  Study Group    │
                                                └─────────────────┘
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IEEE

IEEE-SA
Standards Association

Standards Board

IEEE 802
Sponsor Group

RevCom
Review Committee

NesCom
New Stds. Committee

IEEE 802.3
Working Group

Higher Speed
Study Group

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*
- LAN/MAN Standards Committee (LMSC) Policies and Procedures:
  - *http://ieee802.org/policies-and-procedures.pdf*
- IEEE 802.3 Working Group Operating Rules:
  - *http://ieee802.org/3/rules/P802_3_rules.pdf*

IEEE-SA Standards Board Bylaws on Patents in Standards

6. Patents

IEEE standards may include the known use of essential patents and patent applications provided the IEEE receives assurance from the patent holder or applicant with respect to patents whose infringement is, or in the case of patent applications, potential future infringement the applicant asserts will be, unavoidable in a compliant implementation of either mandatory or optional portions of the standard [essential patents]. This assurance shall be provided without coercion. The patent holder or applicant should provide this assurance as soon as reasonably feasible in the standards development process. This assurance shall be provided no later than the approval of the standard (or reaffirmation when a patent or patent application becomes known after initial approval of the standard). This assurance shall be either:

a) A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement either mandatory or optional portions of the proposed IEEE standard against any person or entity complying with the standard; or

b) A statement that a license for such implementation will be made available without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination.

This assurance is irrevocable once submitted and accepted and shall apply, at a minimum, from the date of the standard's approval to the date of the standard's withdrawal.

Approved by IEEE-SA Standards Board – March 2003 (Revised February 2006)
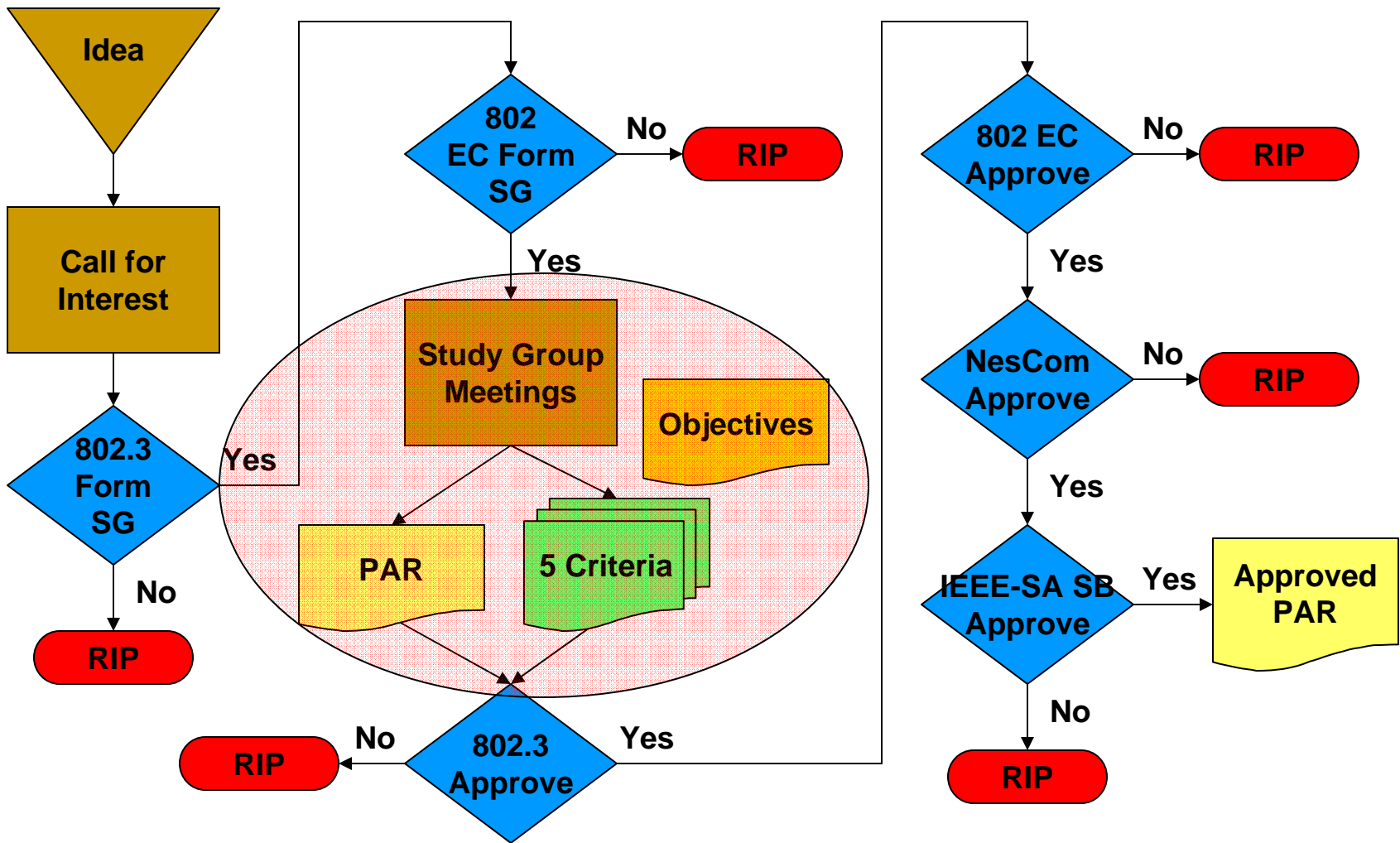
Inappropriate Topics for IEEE WG Meetings

- Don't discuss the validity/essentiality of patents/patent claims

- Don't discuss the cost of specific patent use

- Don't discuss licensing terms or conditions

- Don't discuss product pricing, territorial restrictions, or market share

- Don't discuss ongoing litigation or threatened litigation

- Don't be silent if inappropriate topics are discussed… do formally object.

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit http://standards.ieee.org/board/pat/index.html

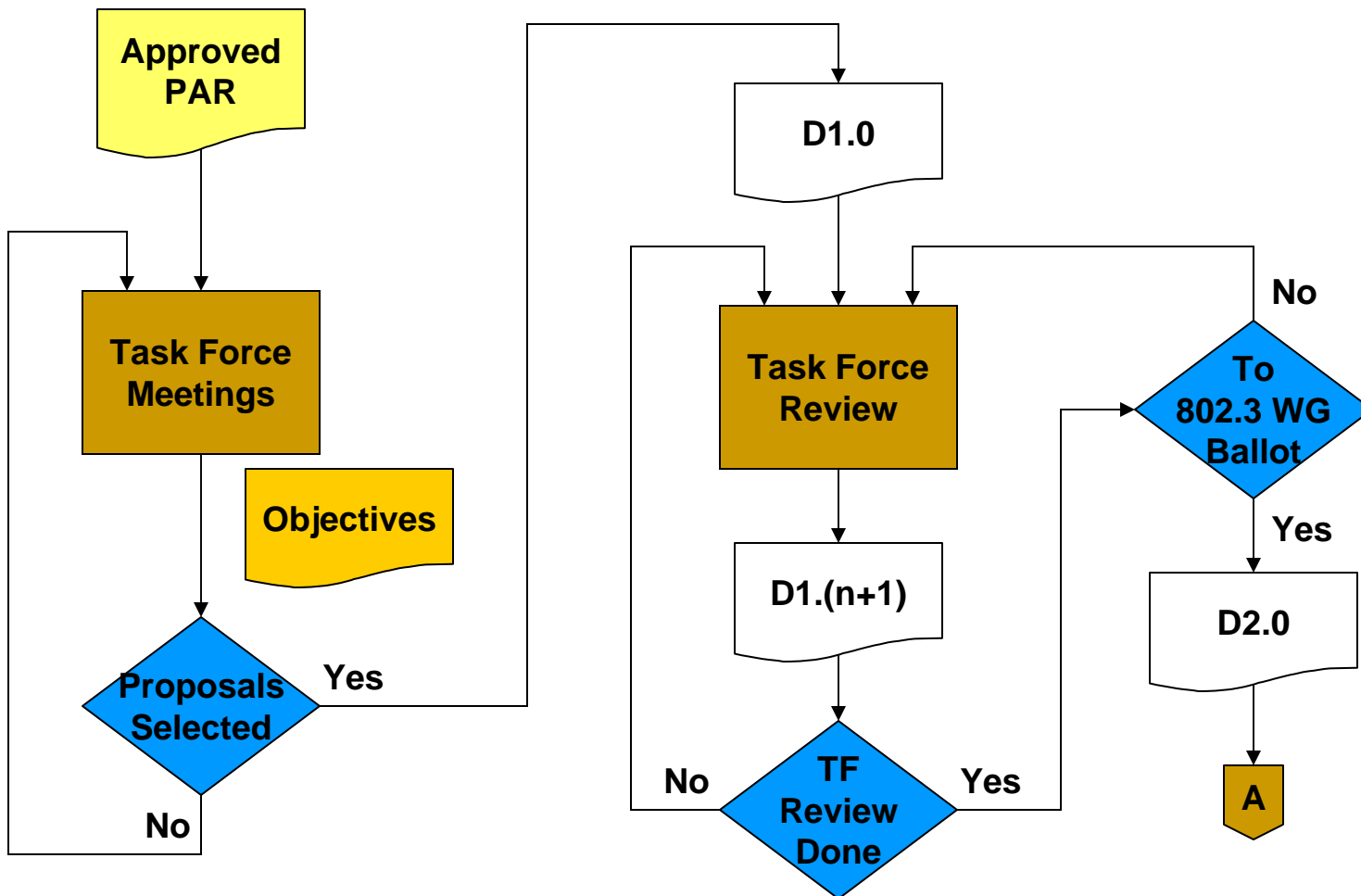**This slide set is available at http://standards.ieee.org/board/pat/pat-slideset.ppt**

Approved by IEEE-SA Standards Board – March 2003 (Revised February 2006)

IEEE Standards Process (1/4)

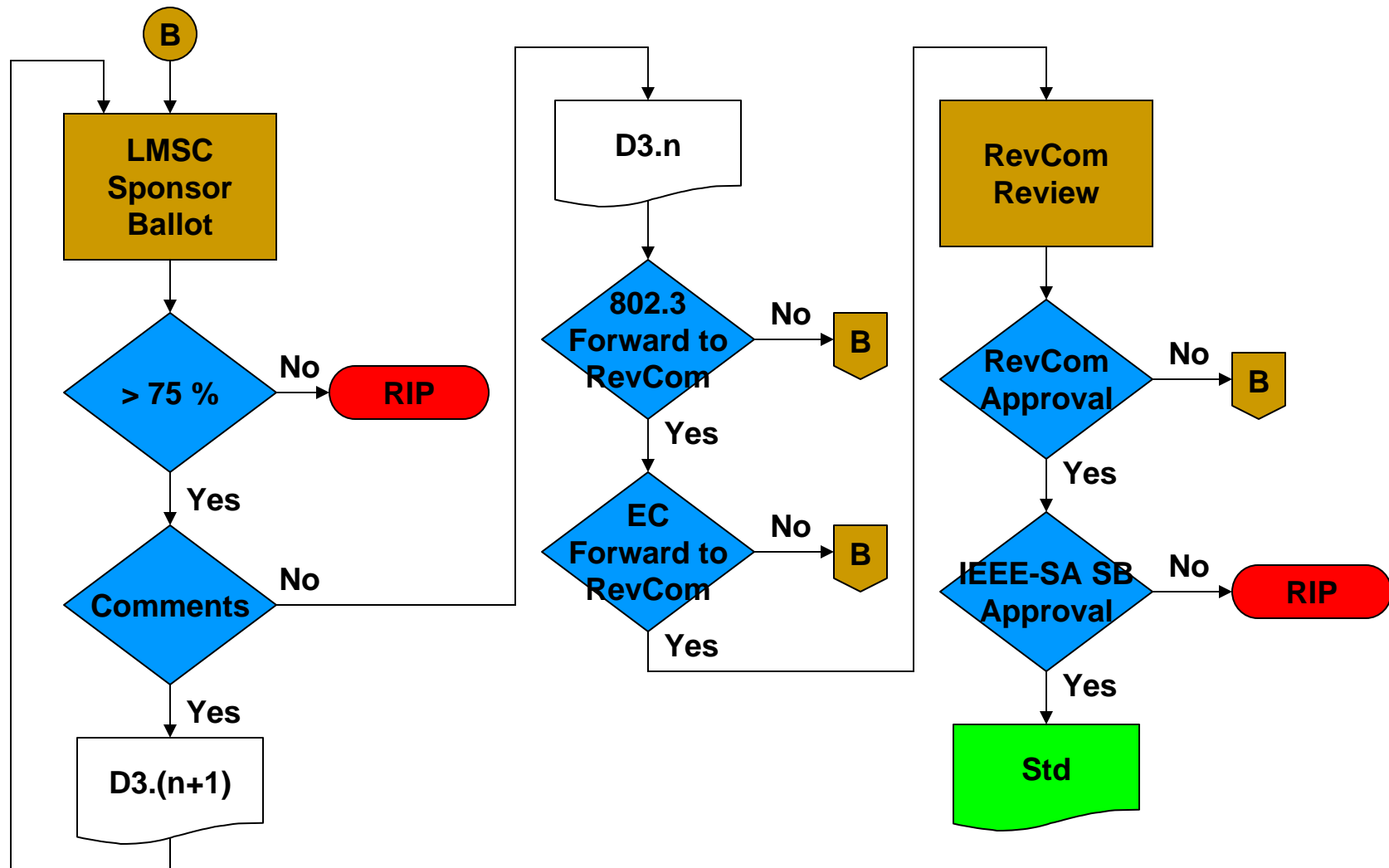# IEEE Standards Process (2/4)

Approved PAR → **Task Force Meetings**

Objectives

Task Force Meetings → **Proposals Selected**
- **Yes**
- **No**

D1.0 → **Task Force Review** → **D1.(n+1)** → **TF Review Done**
- **No**
- **Yes**

To 802.3 WG Ballot
- **No**
- **Yes** → **D2.0** → **A**

IEEE Standards Process (3/4)

A

802.3 WG Ballot

> 75 %

No → RIP

Yes

Comments

No

Yes

D2.(n+1)

D3.0

802.3 Forward to LMSC

No → A

Yes

EC Forward to LMSC

No → A

Yes

B
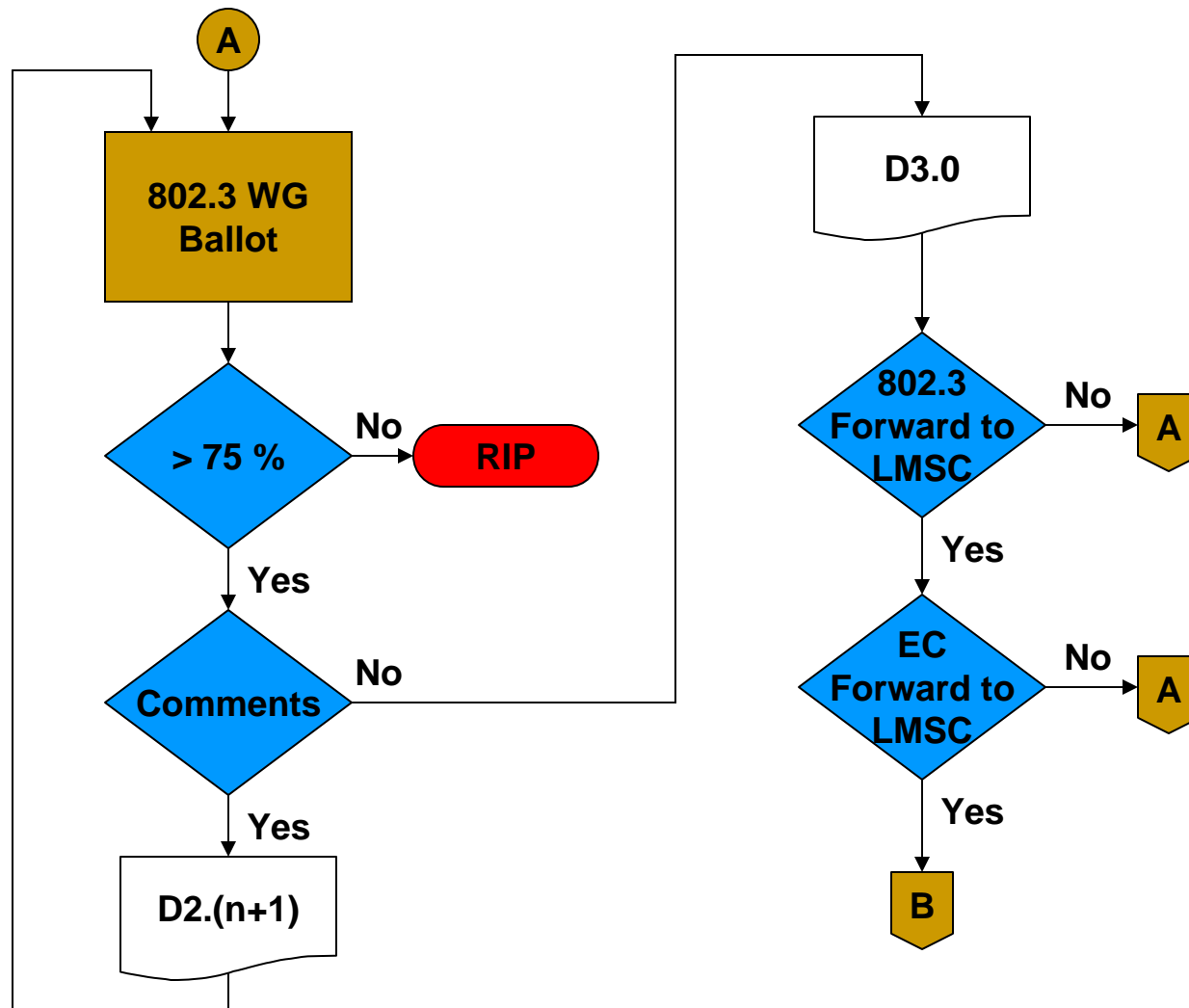
IEEE Standards Process (4/4)

The Study Group

- Normal function is to draft a complete PAR and Five Criteria
- Provide a plenary week tutorial to the LMSC.
- 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.

Objectives

CONSENSUS - UNDER CONSTRUCTION

PAR

- **Title**
  - ❑ What are we calling this
- **Scope**
  - ❑ The Focus – Higher Speed Ethernet
- **Purpose**
 - ❑ Why do we want to do this

5 Criteria

- Broad Market Potential
  - Broad set(s) of applications
  - Multiple vendors, multiple users
  - Balanced cost (LAN vs. attached stations)
- Compatibility with IEEE Std. 802.3
  - Conformance with CSMA/CD MAC, PLS
  - Conformance with 802.2
  - Conformance with 802 Functional Requirements
- Distinct Identity
  - Substantially different from other 802.3 specifications
  - One unique solution for problem
  - Easy for document reader to select relevant spec
- Technical Feasibility
  - Demonstrated system feasibility
  - Proven technology, reasonable testing
  - Confidence in reliability
- Economic Feasibility
  - Cost factors known, reliable data
  - Reasonable cost for performance
  - Total installation costs considered

Possible Study Group Schedule

- **January, 2007 Interim Meeting**
  - Draft Objectives
- **March, 2007 Plenary Meeting**
  - Complete Objectives (if not complete from Jan)
  - Draft PAR & 5 Criteria
  - Prepare for Tutorial in July
- **April, 2007 Interim Meeting?**
  - Complete PAR & 5 Criteria?
- **May, 2007 Interim Meeting**
  - Complete PAR & 5 Criteria
  - Submit draft to 802 SEC
- **July, 2007 Plenary Meeting**
  - Execute PAR approval process
  - 802.3 Approve PAR for forwarding to 802 SEC
  - 802 SEC approve and forward to NesCom
- **August, 2007**
  - Submit PAR to NesCom
- **September, 2007**
  - NesCom: Approve PAR
  - IEEE-SA Standards Board Approve PAR
- **November 2007 Plenary Meeting**
  - First official Task Force Meeting

Possible Timeline for 1 HSE Project
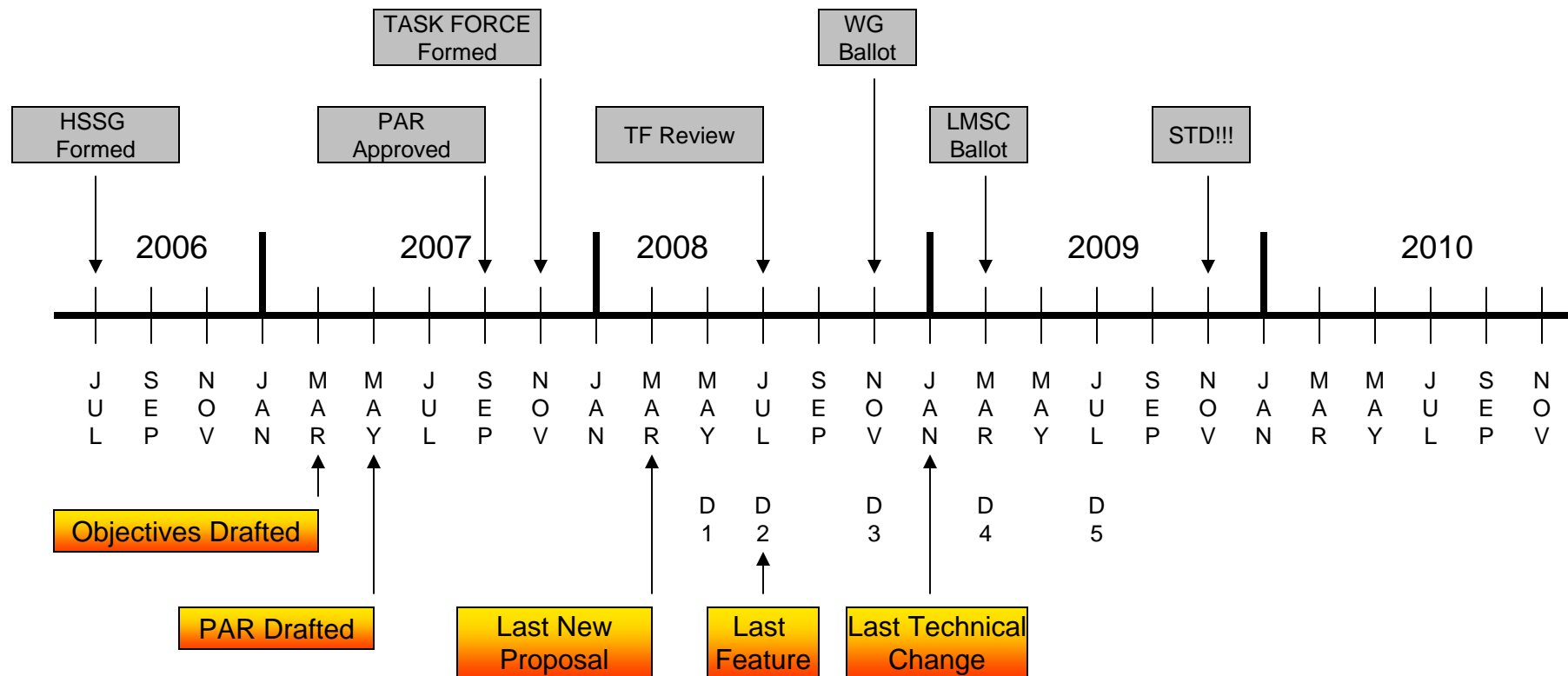
Liaison Letter(s) / Ad Hoc Reports

- **Liaison letter received from OIF**
  - CEI-25 Project, Define 25 Gb/s signaling for chip-to-chip and backplane applications
  - Need to work on formulating a response

- **Liaison letter received from ITU-T SG15**
  - Need to work on formulating a response

- **"Reach" Ad Hoc**
  - Andy Moorwood, Extreme Networks

- **"Fiber Optic" Ad Hoc**
  - Dan Dove, ProCurve Networking by HP

Meeting Map

	Mon	Tues	Wed	Thur	Fri
8:00	SEC	HSSG Presentations	HSSG Presentations	HSSG Discussions, Motions, Closing	
8:30					
9:00					
9:30					
10:00					
10:30					
11:00	802.0 Plenary				
11:30					
12:00	Lunch	Lunch	Lunch	Lunch	
12:30					
13:00	802.3 Plenary	HSSG Presentations	HSSG Presentations	802.3 Plenary	SEC
13:30					
14:00					
14:30					
15:00					
15:30					
16:00					
16:30					
17:00		Dinner	Dinner		
17:30					
18:00	Dinner				
18:30	Tutorial #1	CFI / Tutorial #3	Social		
19:00					
19:30					
20:00	Tutorial #2	Tutorial #4			
20:30					
21:00					
21:30					

Presentations – Tuesday, 11/14

Time	Presenter	Company	Title	File Name	Duration
8:00 AM			Agenda and General Information	agenda_01_1106.pdf	0:30
8:30 AM	Tom Palkert	Xilinx	Liaison From OIF	oif2006.324.01_IEEE.pdf	0:10
8:40 AM	Pete Anslow	Nortel	Liaison From ITU-T SG15	ITU-T SG-15 liaison.pdf	0:15
8:55 AM	Andy Moorwood	Extreme Networks	Reach Ad Hoc Report	moorwood_01_1106	0:15
9:10 AM	Dan Dove	Procurve Networking by HP	Fiber Optic Ad Hoc Report	dove_01_1106.pdf	0:10
9:20 AM	Mike Bennett	LBNL	HSSG Objectives: The End Users` View	bennett_01_1106.pdf	0:30
9:50 AM	George Young	AT&T Labs	Objectives for Service Provider Shared Transport of 802.3 Higher Speed Ethernet	young_01_1106.pdf	0:25
10:25 AM	Break				0:20
10:45 AM	Arne Alping	Ericsson	Higher Speed Ethernet - A telecom system vendors view	alping_01_1106.pdf	0:15
11:00 AM	Joel Goergen, Subi Krishnamurthy	Force10 Networks	The Impact of Scalable HSSG from Systems Perspective	goergen_01_1106.pdf	0:30
11:30 AM	Dan Dove	ProCurve Networking by HP	HSSG Goals and Objectives -System Vendors' Perspective	dove_02_1106.pdf	0:30
12:00 PM	Lunch				1:15
1:15 PM	Mike Steinberger	Cray	Cray High Speed Interconnect Requirements	steinberger_01_1106.pdf	0:30
1:45 PM	Jan Peeters	Intel	HSSG Considerations	peeters_01_1106.pdf	0:30
2:15 PM	Menachem Abraham	Columbus Advisors	Objectives Discussion – (i) MAC Data Rate Considerations (ii) Long Haul objective	abraham_01_1106.pdf	0:15
2:30 PM	Howard Frazier	Broadcom	Update on APL	frazier_01_1106.pdf	0:30
3:00 PM	Brad Booth	AMCC	MAC Rate	booth_01_1106.pdf	0:30
3:30 PM	Break				0:20
3:50 PM	Med Belhadj	Cortina Systems	Feasibility of a 100G MAC	belhadj_01_1106.pdf	0:30
4:20 PM	Drew Perkins, Ted Sprague	Infinera	Higher Speed Ethernet Requirements	perkins_01_1106.pdf	0:30

Presentations – Wednesday, 11/15

Time	Presenter	Company	Title	File Name	Duration
8:00 AM			Day's Opening Comments		0:10
8:10 AM	Chris DiMinico	MC Communications	Telecommunications Infrastructure Standard for Data Centers, ANSI/TIA-942	diminico_01_1106.pdf	0:40
8:50 AM	Piers Dawe, David Cunningham	Avago	The 10G Ethernet Link Model	dawe_01_1106.pdf	0:45
9:35 AM	Alessandro Barberi	Cisco	Cisco 10GbE Historical Ethernet PMD adoption rates	barbieri_01_1106.pdf	0:20
9:55 AM	Joel Goergen	Force10 Networks	PMD Objectives: 10KM to 40KM PMD	goergen_02_1106.pdf	0:30
10:30 AM	Break				0:15
10:45 AM	Petar Pepeljugoski	IBM Research	MMF PMD for Short Distances in Data Center and High Performance Computing Environments	pepeljugoski_01_1106.pdf	0:20
11:05 AM	Jack Jewell, Mike Dudek	Picolight	Short-Reach on Paralle MMF for Low-Cost Higher-Speed Ethernet	jewell_01_1106.pdf	0:15
11:20 AM	Steve Swanson	Corning	Some Ideas for a Cost Effective OM3 PMD for HS Ethernet	swanson_01_1106.pdf	0:20
11:40 AM	Jim Tatum	Finisar	Optical Components for 100 Gbps	tatum_01_1106.pdf	0:15
12:00 PM	Lunch				1:30
1:30 PM	Chris Cole	Finisar	100Gb Transceiver Technical & Economic Feasibility Work in Progress	cole_01_1106.pdf	0:35
2:05 PM	Shinji Nishimura	Hitachi	PMD architecture with skew compensation mechanism for parallel link	nishimura_01_1106.pdf	0:25
2:30 PM	Steve Trowbridge Maarten Vissers	Lucent Alcatel	Overhead Efficiency Analysis of Multi-Lane Alternatives	trowbridge_01_1106.pdf	0:15
2:45 PM	Marcus Duelk, Peter Winzer	Lucent	Polarization Mode Dispersion Aspects for Parallel and Serial PHY	duelk_02_1106.pdf	0:15
3:00 PM	Marcus Duelk, Peter Winzer	Lucent	DQPSK Format for Serial PHY	duelk_01_1106.pdf	0:15
3:30 PM	Break				0:20
3:50 PM	Chris DiMinico George Zimmerman	MC Communications SolarFlare	Feasibility of a 100 Gbps copper interconnect.	diminico_02_1106.pdf	0:25
4:15 PM	Mark Gustlin	Cisco	100G Ten Bit Interface Proposal	gustlin_01_1106.pdf	0:30

Schedule – Thursday, 11/16

8:00 AM			Discussion & Motions		
10:30 AM	Break				0:20
10:50 AM			Discussion & Motions (continued)		
12:00 PM	Adjourn				

Future Meetings

- Jan 2007 Interim (Details being finalized)

- March 2006 Plenary
  - March 11 -16, 2007
  - Orlando, Fl
  - Caribe Royale

- April 2007 Interim - ???
  - Anyone interested in hosting a meeting should contact me.

Thank You!