



IEEE P802.3ap

Backplane Ethernet Task Force

Agenda and General Information

Ottawa, Ontario
September 27, 2004



Agenda

- Welcome and Introductions
- Approve Agenda
- Approve Meeting Minutes
- Goals for this Meeting
- Task Force Organization
- Reflector and Web
- Ground Rules
- IEEE
 - Structure
 - Bylaws and Rules
 - Call for Patents
 - IEEE Standards Process
- Presentations
- Future Meetings
- Motion Madness



Goals for this Meeting

- Work toward IEEE P802.3ap Draft 1.0.
 - Adopt proposals for the formation of a baseline.
 - Baseline is used to create Draft 1.0.
 - Draft 1.0 is reviewed by the Task Force; comments on the draft are generated and resolved.
 - Draft 1.0 becomes Draft 2.0 once the Task Force creates a technically complete specification.

- Hear presentations.

- Formalize points of agreement with motions.
 - Adopt what proposals we can to improve focus and narrow the workload for November.



Task Force Organization

- Task Force Chair
 - Adam Healey (ahealey@agere.com)

- Task Force Secretary
 - John D'Ambrosia (john.dambrosia@tycoelectronics.com)

- Chief Editor
 - Schelto van Doorn (schelto.vandoorn@intel.com)

- Channel Model Ad Hoc Chair
 - Joel Goergen (joel@force10networks.com)

- Signaling Ad Hoc Chair
 - Mike Altmann (michael.w.altmann@intel.com)



Reflector and Web

- To subscribe to the IEEE P802.3ap Backplane Ethernet Task Force reflector send an email to:
listserv@ieee.org

with the following in the body of the message:

[subscribe stds-802-3-blade <yourfirstname> <yourlastname>](#)

For complete instructions on reflector usage, subscription, and unsubscription:

<http://ieee802.org/3/ap/reflector.html>

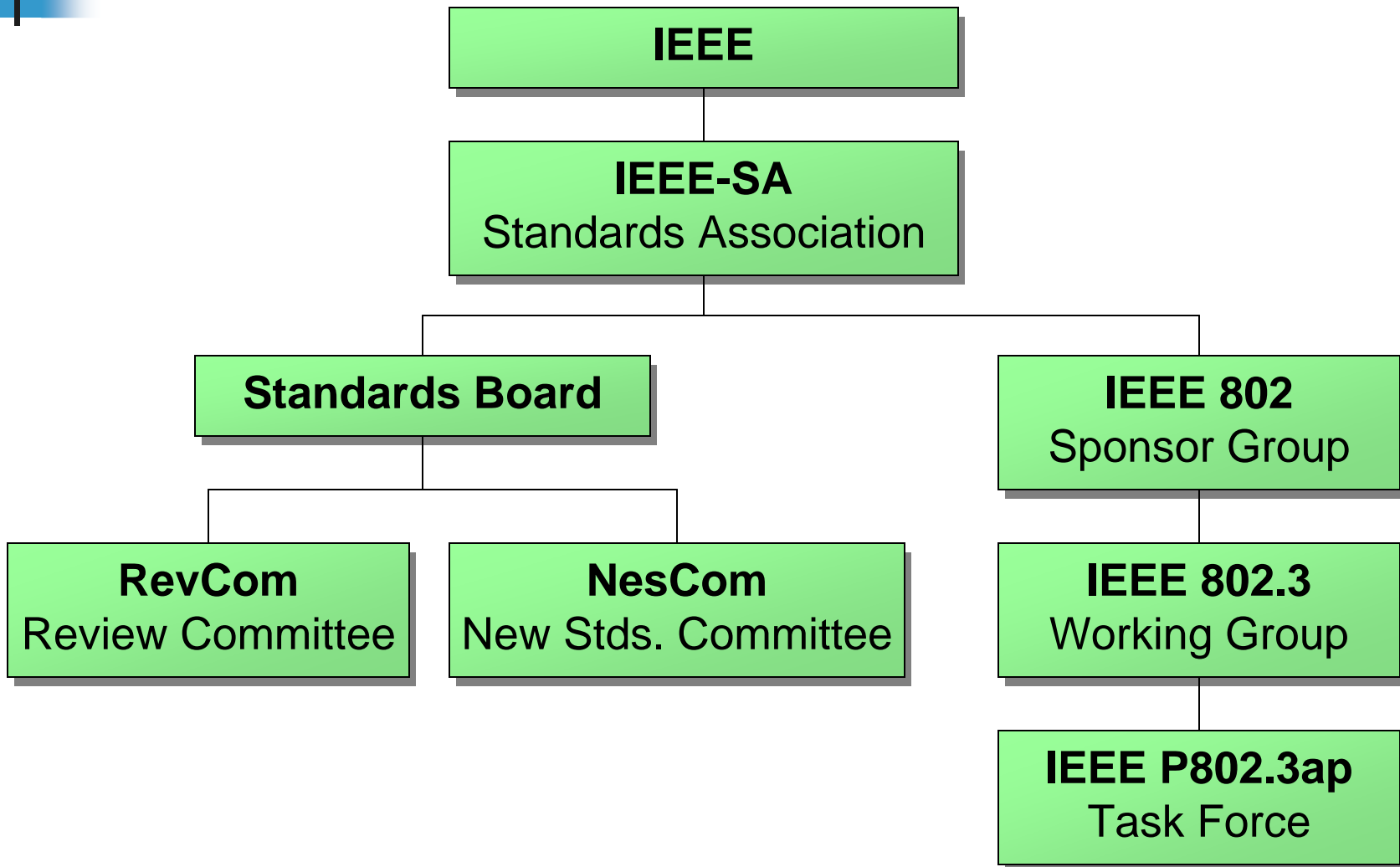
- IEEE P802.3ap Task Force web page:
<http://www.ieee802.org/3/ap/>
- Channel Model Ad Hoc web page:
http://www.ieee802.org/3/ap/public/channel_adhoc
- Signaling Ad Hoc web page:
http://www.ieee802.org/3/ap/public/signal_adhoc



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 Structure





Bylaws and Rules

- IEEE Standards Association (IEEE-SA):
<http://standards.ieee.org/sa>
- 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 Standards Board Bylaws on Patents in Standards

6. Patents

IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard. This assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent becomes known after initial approval of the standard). This assurance shall be a letter that is in the form of 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 the proposed IEEE standard against any person or entity using the patent(s) to comply with the standard or
- b) A statement that a license 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 shall apply, at a minimum, from the date of the standard's approval to the date of the standard's withdrawal and is irrevocable during that period.

Approved by IEEE-SA Standards Board – December 2002



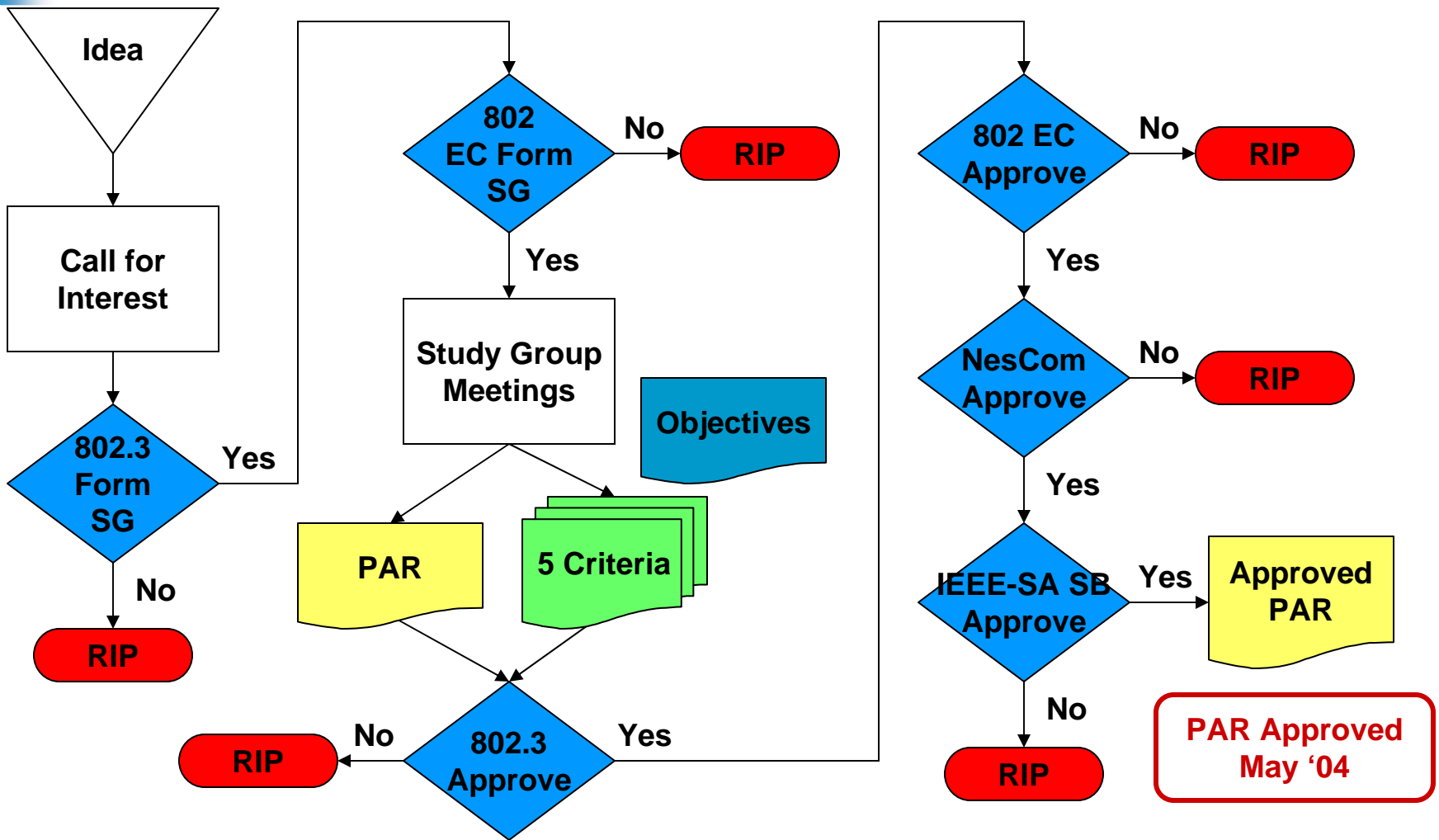
Inappropriate Topics for IEEE WG Meetings

- 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.

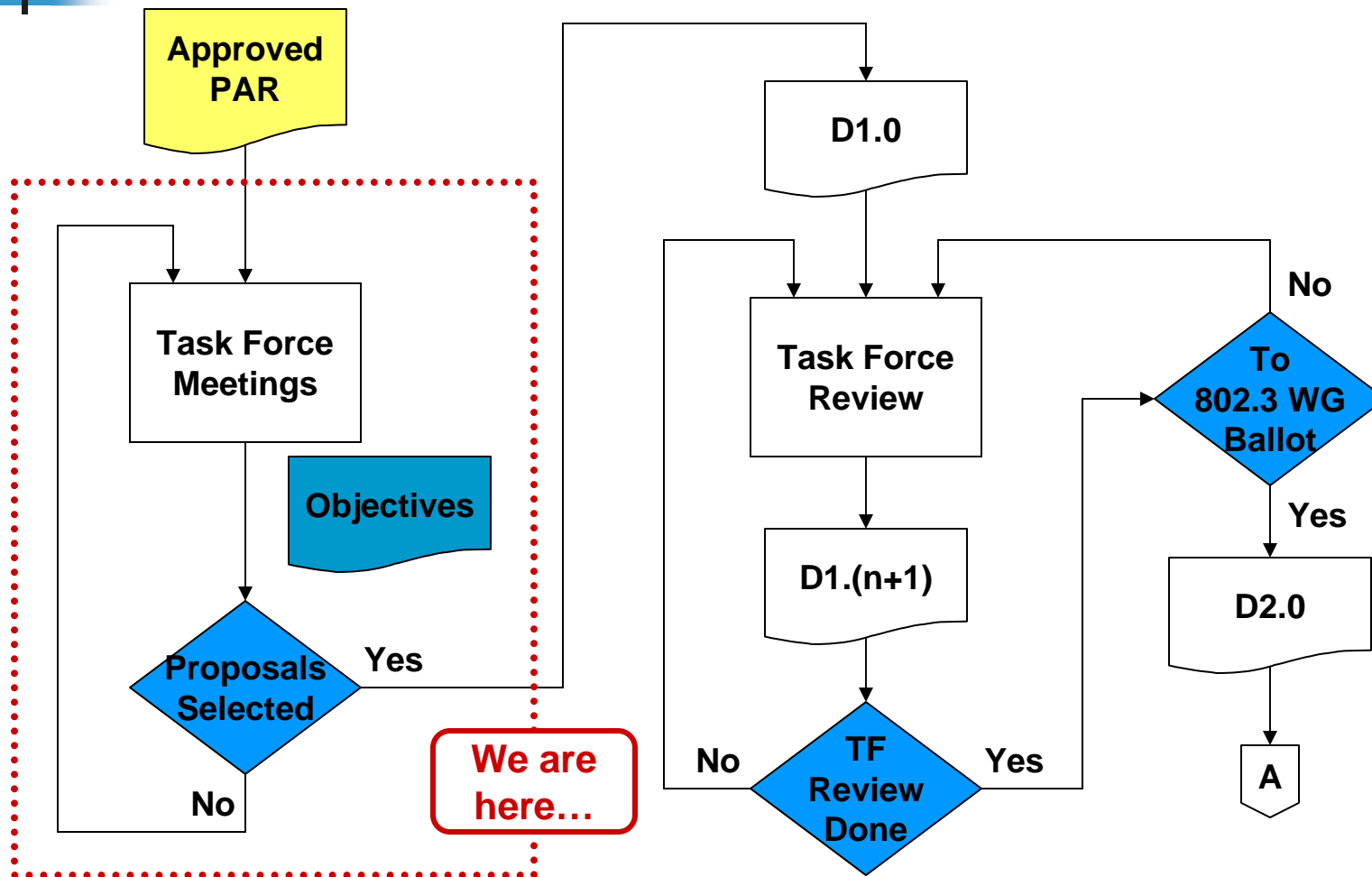
If you have questions, contact the IEEE Patent Committee Administrator at patcom@ieee.org

Approved by IEEE-SA Standards Board – December 2002

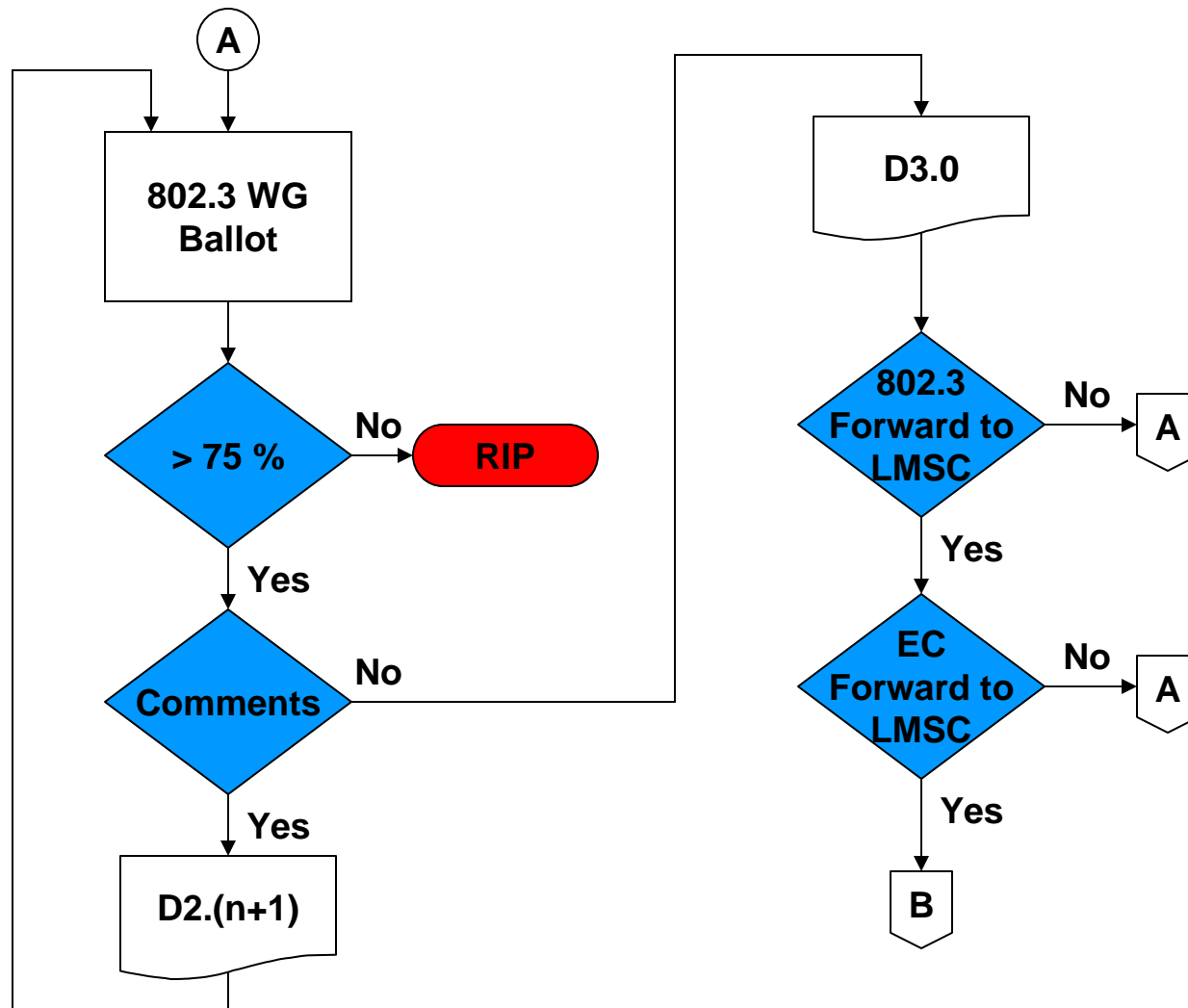
IEEE Standards Process



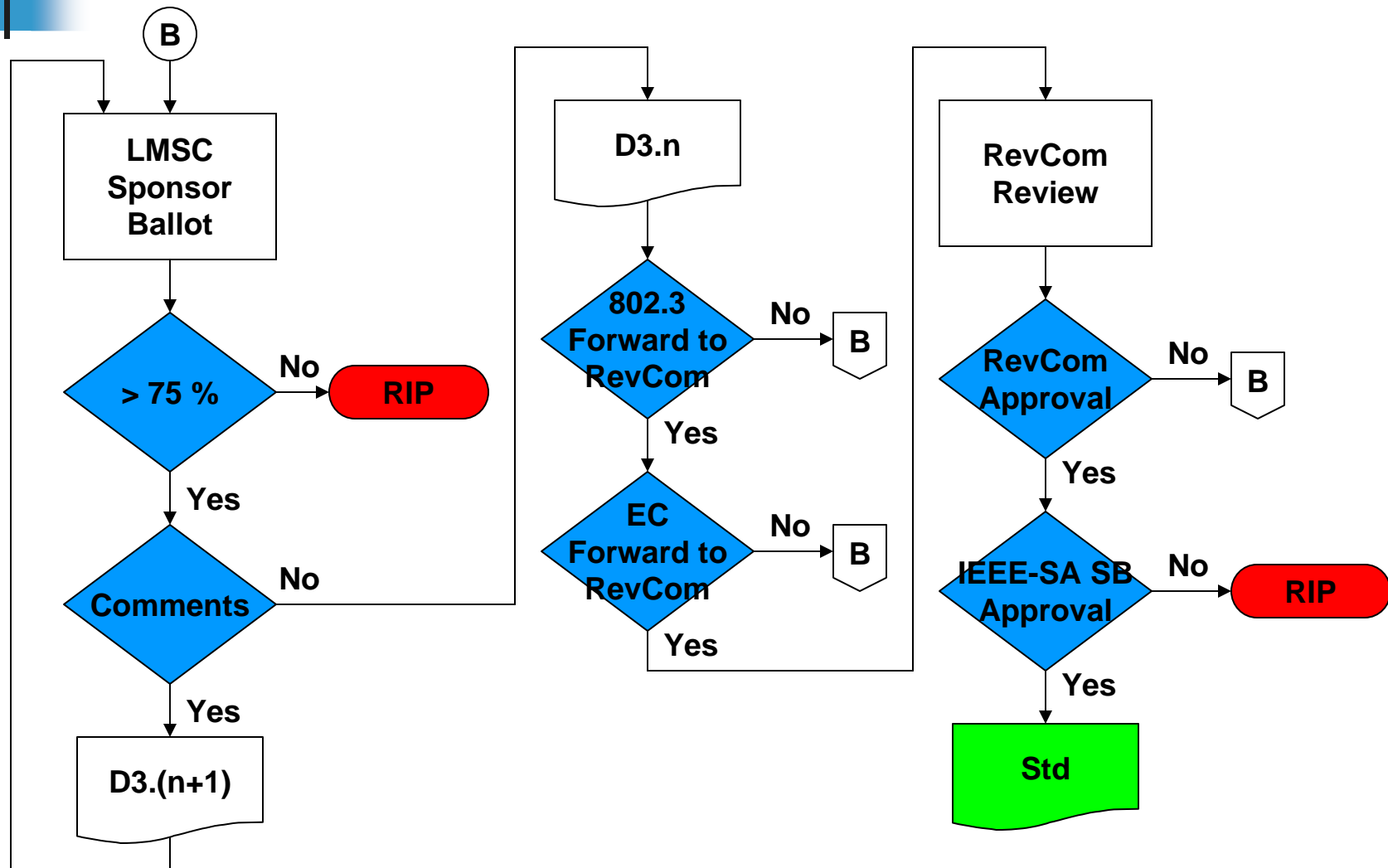
IEEE Standards Process (cont.)



IEEE Standards Process (cont.)



IEEE Standards Process (cont.)





IEEE P802.3ap Task Force Documents

- Approved PAR

<http://standards.ieee.org/board/nes/projects/802-3ap.pdf>

- 5 Criteria

http://ieee802.org/3/ap/802_3_ap_5criteria.pdf

- Objectives

http://ieee802.org/3/ap/802_3_ap_objectives.pdf



IEEE P802.3ap Objectives

- Preserve the 802.3/Ethernet frame format at the MAC Client service interface.
- Preserve min. and max. frame size of current 802.3 Std.
- Support existing media independent interfaces.
- Support operation over a single lane across 2 connectors over copper traces on improved FR-4 for links consistent with lengths up to at least 1m.
 - Define a 1 Gb/s PHY
 - Define a 10 Gb/s PHY
- **Define a 4-lane 10Gb/s PHY for operation over the 802.3ap channel model.**
- Consider auto-negotiation.
- Support BER of 10^{-12} or better.
- Meet CISPR/FCC Class A.



The story so far... (1/2)

- Definition of “Improved FR-4”

- Move to adopt the Dk/Df values defined in goergen_01_0704, (pdf) page 5, as the minimum definition of “Improved FR-4” with modification to temperature tolerance from “0 to 55°C” to “0 to 70°C.” Reference goergen_01_0704, goergen_01_0504, and goergen_02_0304.

Passed (All: 41/0/6, 802.3: 14/0/6)

“Improved FR-4”



My Thoughts on ‘Improved FR-4’ in reference to IEEE802.3ap

- Improved FR-4 (Mid Resolution Signal Integrity):
 - 100Mhz: $Dk \leq 3.60$; $Df \leq .0092$
 - 1Ghz: $Dk \leq 3.60$; $Df \leq .0092$
 - 2Ghz: $Dk \leq 3.50$; $Df \leq .0115$
 - 5Ghz: $Dk \leq 3.50$; $Df \leq .0115$
 - 10Ghz: $Dk \leq 3.40$; $Df \leq .0125$
 - 20Ghz: $Dk \leq 3.20$; $Df \leq .0140$
- Temperature and Humidity Tolerance (~~0-55degC~~, 10-90% non-condensing):
 - $Dk: \pm .04$
 - $Df: \pm .001$
- Resin Tolerance (standard $\pm 2\%$):
 - $Dk: \pm .02$
 - $Df: \pm .0005$

70degC

7 July 2004 7:38 PM



The story so far... (2/2)

- Auto-Negotiation and Management

- Clause 45 Register Set and Clause 45 MDIO interface be adopted.

Passed (All: 35/0/15, 802.3: 16/0/5)

- Auto-negotiation at a minimum include port-type (e.g. 1G 1 lane, 10G 4 lane, 10G 1 lane) negotiation and any parameter exchange required to select the proper PMA.

Passed (All: 39/0/8, 802.3: 19/0/4)

- Auto-negotiation not be restricted to existing base page definitions.

Passed (All: 34/0/11, 802.3: 17/0/6)



Port Naming Convention

- *<speed><modulation>-<type>*
 - *<speed>* = 1000(M), 10G
 - *<modulation>* is BASE (baseband)
- Existing *<Type>* Conventions
 - X = external sourced coding (4B5B for 100BASE-**z**X, 8B10B for 1000BASE-**z**X and 10GBASE-**z**X4)
 - R = 64b/66b coding (10GBASE-**z**R)
- Define new convention (**z**) for Backplane Ethernet
 - B as **B**ackplane?
 - bi-directional (EFM), backbone optics (10M)
 - P as in **P**CB?
 - passive optics (10M, and EFM)
 - As it turns out, only H, J, K, N, Y are unused
 - Suggestion has been to use K, as in *back**K**plane*

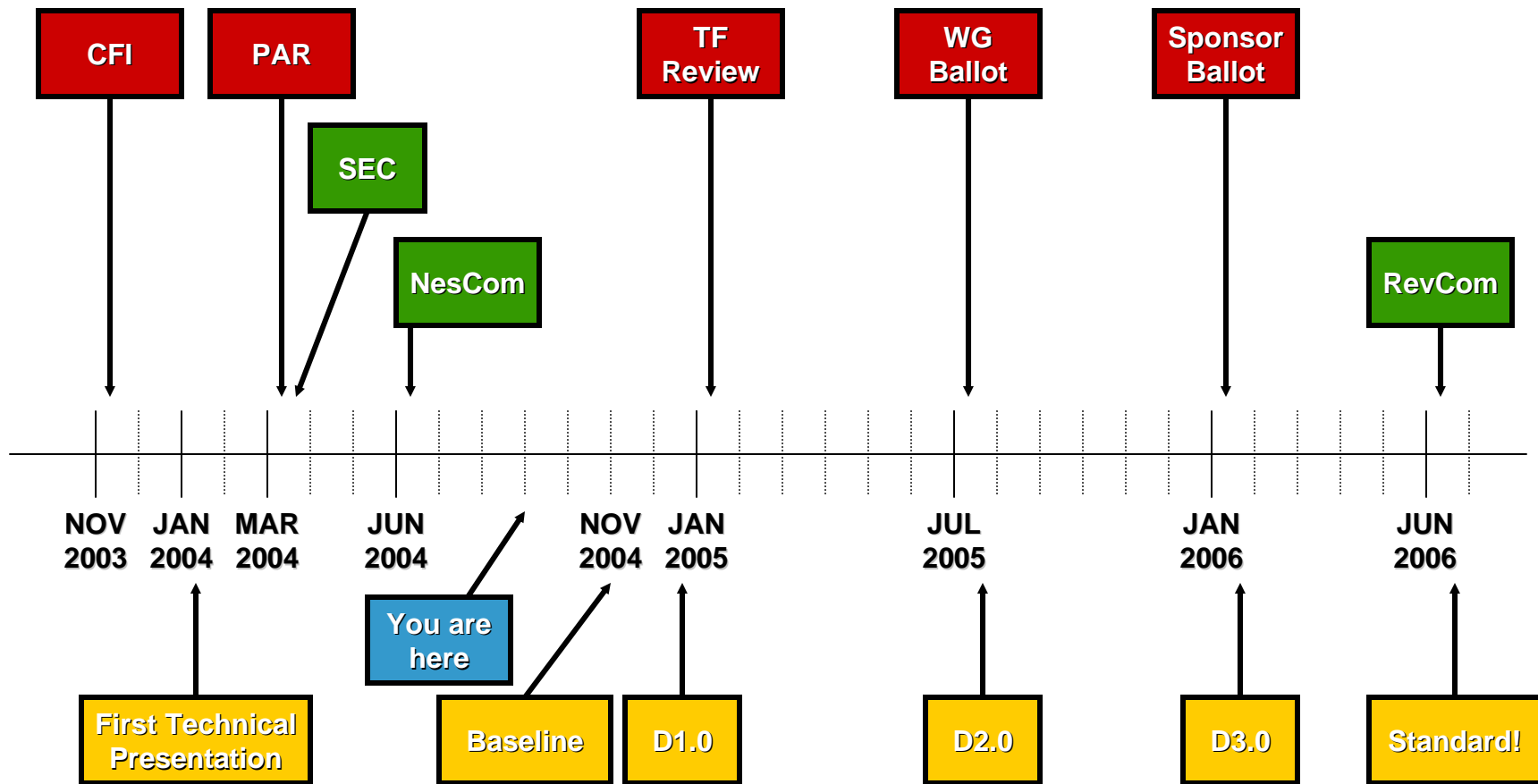


Proposed Port Naming Convention

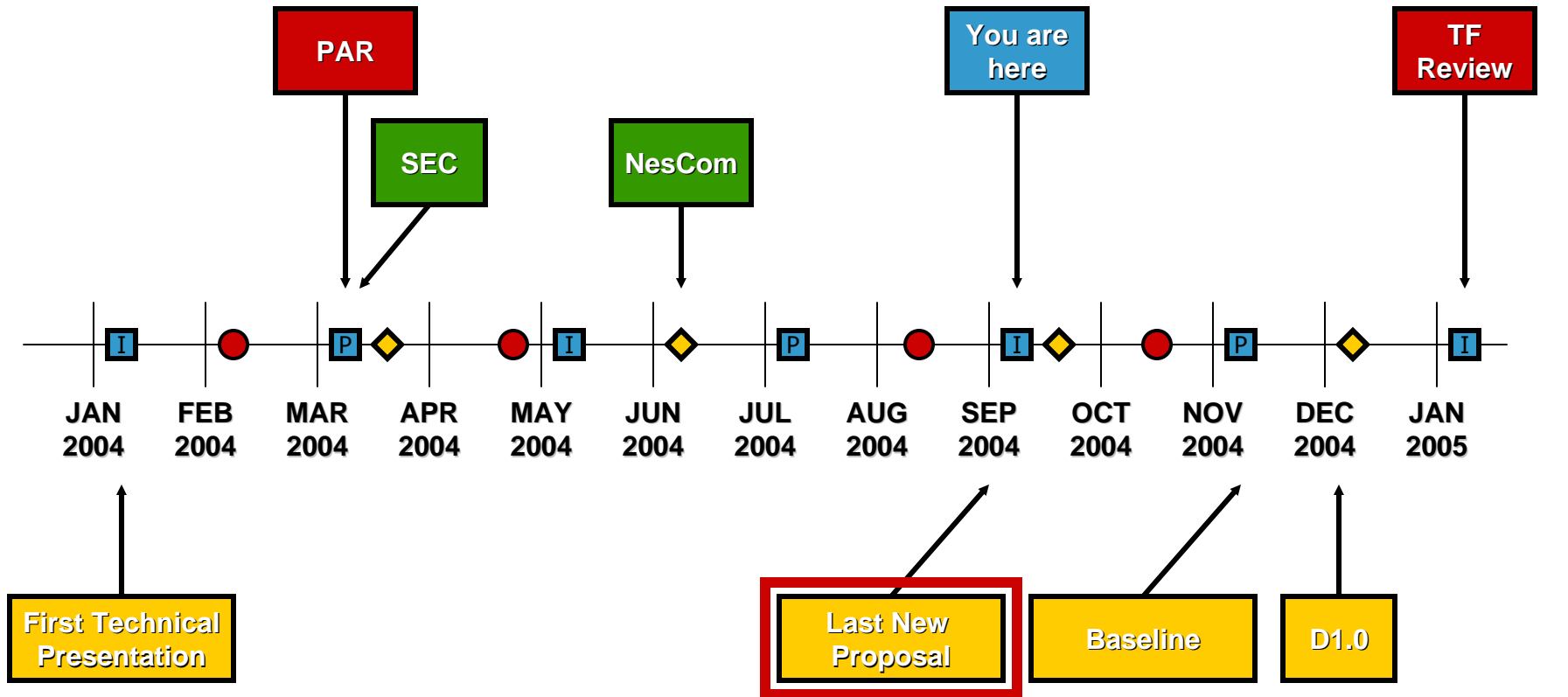
- 1-Gigabit Serial PMD
 - 1000BASE-KX
- 10-Gigabit 4-Lane PMD
 - 10GBASE-KX4
- 10-Gigabit Serial PMD
 - 10GBASE-KR

Thanks to Brad Booth for compiling the 802.3 port naming conventions.

IEEE P802.3ap Timeline



Timeline Detail



Approved by Task Force
(July 2004)

- PAR Submission Deadline
- ◆ Standards Board Meeting
- Meeting
(P = Plenary, I = Interim)

Presentations: Monday 9/27

8:30 AM		Agenda and General Information	0:20
8:50 AM	Palkert	OIF Report	0:10
9:00 AM	van Doorn	T11.2 and SFF Report to IEEE 802.3ap	0:10
9:10 AM	van Doorn	Draft Document Backplane Signaling Proposal	0:20
9:30 AM	Goergen	Informative Back Plane Channel: Sept 04 Ad-hoc Recommendations	0:30
10:00 AM		Break	0:15
10:15 AM	Altmann	Signaling Ad Hoc Report	0:20
10:35 AM	Lynch	Backplane Signaling Proposal for 1Gb/s Serial PMD	0:25
11:00 AM	Gaither	Proposal for 1G serial Backplane PHY	0:25
11:25 AM	Taich	10G 4-Lanes Ethernet over Backplane proposal	0:35
12:00 PM		Lunch	1:15
1:15 PM	Gaither	Proposal for 4x3.125G Lane Backplane PHY	0:25
1:40 PM	Thaler	Improving Auto-Negotiation Efficiency, Page Extension for 802.3ap	0:25
2:05 PM	Ganga	802.3ap Auto-Negotiation with Clause 28 State machines – Baseline proposal	1:20
3:25 PM		Break	0:15
3:40 PM	Baumer	Synchronous Auto-Negotiation Proposal	0:40
4:20 PM	Baumer	EoBP Auto-Negotiation Requirements	0:40
5:00 PM	Booth	Auto-negotiation Selection	0:35
5:35 PM		Break	



Presentations: Tuesday 9/28

8:30 AM	Barazande-Pour	Vitesse Measurements of Channel Adhoc Test Boards	0:20
8:50 AM	Goergen	Channel Compliance to Proposed: Test Cards Part III	0:30
9:20 AM	Peters	AdvancedTCA Channel Data Comparisons	0:40
10:00 AM		Break	0:15
10:15 AM	D'Ambrosia	Channels for Consideration by the Signaling Ad Hoc	0:15
10:30 AM	D'Ambrosia	Return Loss	0:15
10:45 AM	D'Ambrosia	Proposed Changes to NEXT / FEXT Informative Mask Set	0:20
11:05 AM	Goergen	Basic Design Constraints in Describing Informative TP5	0:20
11:25 AM	Sinsky	10 Gb/s Duobinary Signaling over ATCA PICMC 3.0 Backplanes - Measured Results and Cross-talk Simulations	0:35
12:00 PM		Lunch	1:15
1:15 PM	Altmann	Partial response signaling for Backplane Applications	0:20
1:35 PM	Koziuk	Duobinary and NRZ Compatibility	0:30
2:05 PM	Brunn	Edge-Equalized NRZ and Duo-Binary	0:20
2:25 PM	Liu	DFE Performance with 802.3ap Channels	0:20
2:45 PM	Anderson	Further Stat Eye Analyses	0:20
3:05 PM		Break	0:15
3:20 PM	Abler	Simulation Results on Proposed Signaling Ad-hoc Test Channels	0:25
3:45 PM	Gaither	Proposal for 10G serial Backplane PHY using Unified signaling	0:40
4:25 PM	Palkert	Proposed 802.3ap text for 10G Unified signaling proposal	0:20
4:45 PM	Waschura	Proposed Functional Additions to Support Receiver Eye Characterization	0:25
5:10 PM		Break	



Future Meetings

- November 2004 Plenary
 - Week of November 14
 - San Antonio, TX
 - Wyndham St. Anthony

- January 2005 Interim
 - Date TBD
 - Location TBD



Adjourn

Thank You!