IEEE P802.3ap Task Force

Opening Plenary Meeting Report

San Antonio, TX

November 15, 2004

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Reflector and Web

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

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

Interim Meeting

- September 27-29, 2004
  - Ottawa, Ontario
  - 31 Technical Presentations
- Baseline proposals adopted:
  - 1Gb/s serial PHY
  - 10Gb/s 4-lane PHY
  - PCS and PMA for the 10Gb/s serial port type
  - Auto-Negotiation
- Port type naming convention adopted.
- System demarcation points (test points) adopted.

TF Motions (Baseline Adoption)

- Move to adopt the test point model for simulation reference diagram defined in goergen_03_0904, page 11, as informative.
  Passed (All: 32/2/21, 802.3: 13/0/9)
- Accept the draft text as contained in Clause 69.2 in vandoorn_04_0904.pdf as a first draft for serial 1G PHY.
  Passed (All: 36/0/4)
- Accept the draft text as contained in Clause 69.3 in vandoorn_04_0904.pdf as a first draft for four lane 10G PHY.
  Passed (All: 40/0/5)
- Adopt Clause 49 PCS for the serial 10G PHY.
  Passed (All: 30/0/18)
- Adopt Clause 51 PMA for the serial 10G PHY.
  Passed (All: 21/5/25, 802.3: 9/3/10)
- Auto-negotiation based on baseline proposal ganga_01_0904.pdf is adopted as basis for generation of 802.3ap draft 1.0.
- **Passed (All: 30/8/21, 802.3: 15/4/7)**

TF Motions (Other)

- Accept the draft text as contained in Clause 69.1 in vandoorn_04_0904.pdf as a first draft for introductory text.

  Motion Tabled

- Move to adopt the recommended channel ad-hoc SDD21 limit mask defined in goergen_03_0904, page 13, as informative.

  Failed (All: 27/11/21, 802.3: 11/3/11)

- Move to adopt that the channels defined in:
  - anderson_Rev6_Model
  - goergen_02_0904 (1, 2, 3, 6, 7, 8, 14, 17, and 18)

  as members of the simulation set to be used by the Signaling Ad Hoc for evaluation.

  Failed (All: 17/27/12)

Port Type Nomenclature

- Existing Port 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 was to use K, as in *bac**K**plane*

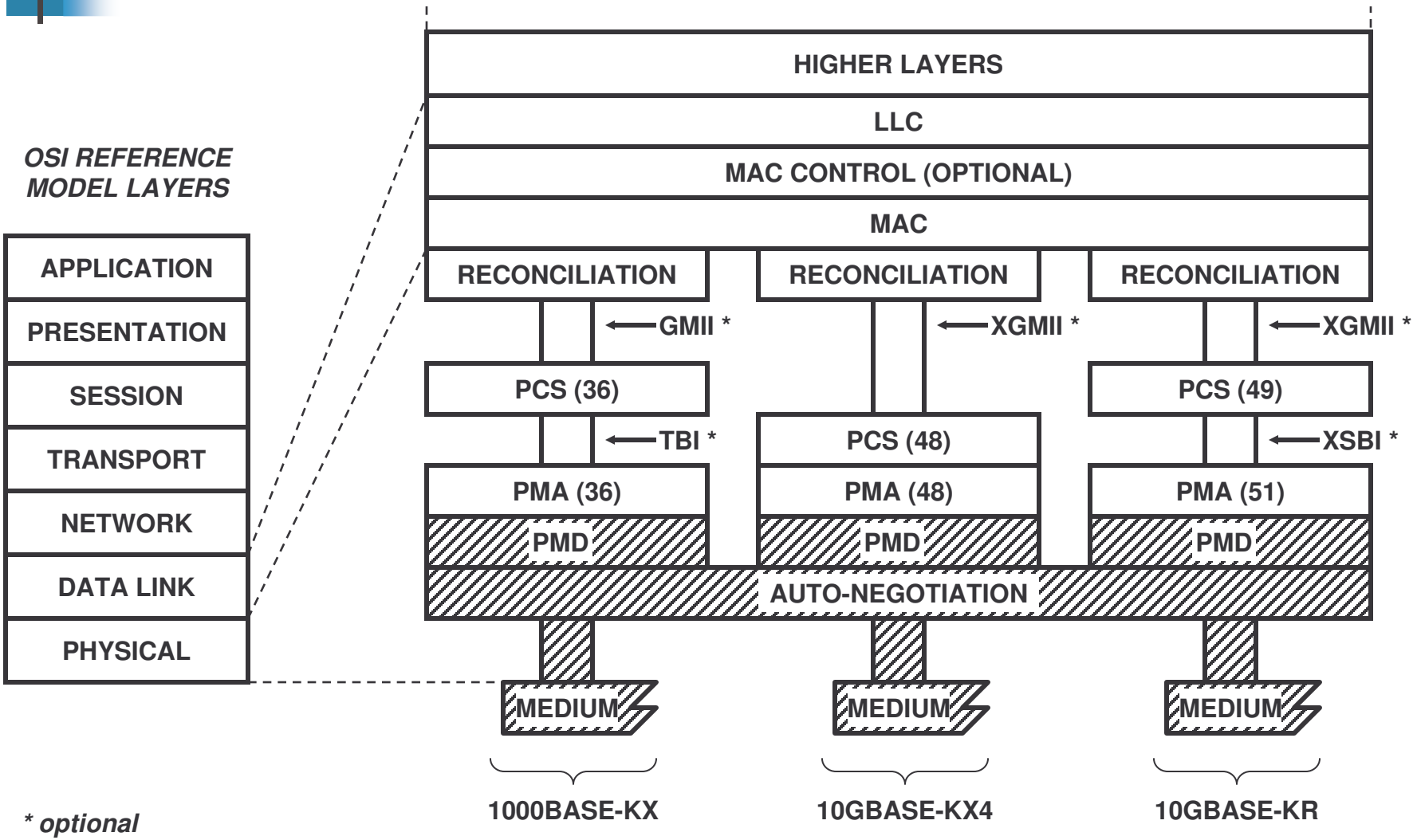
Thanks to Brad Booth for compiling the 802.3 port naming conventions.

Backplane Ethernet Port Types

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

Convention adopted by TF, September 2004 (All: 45/0/5)

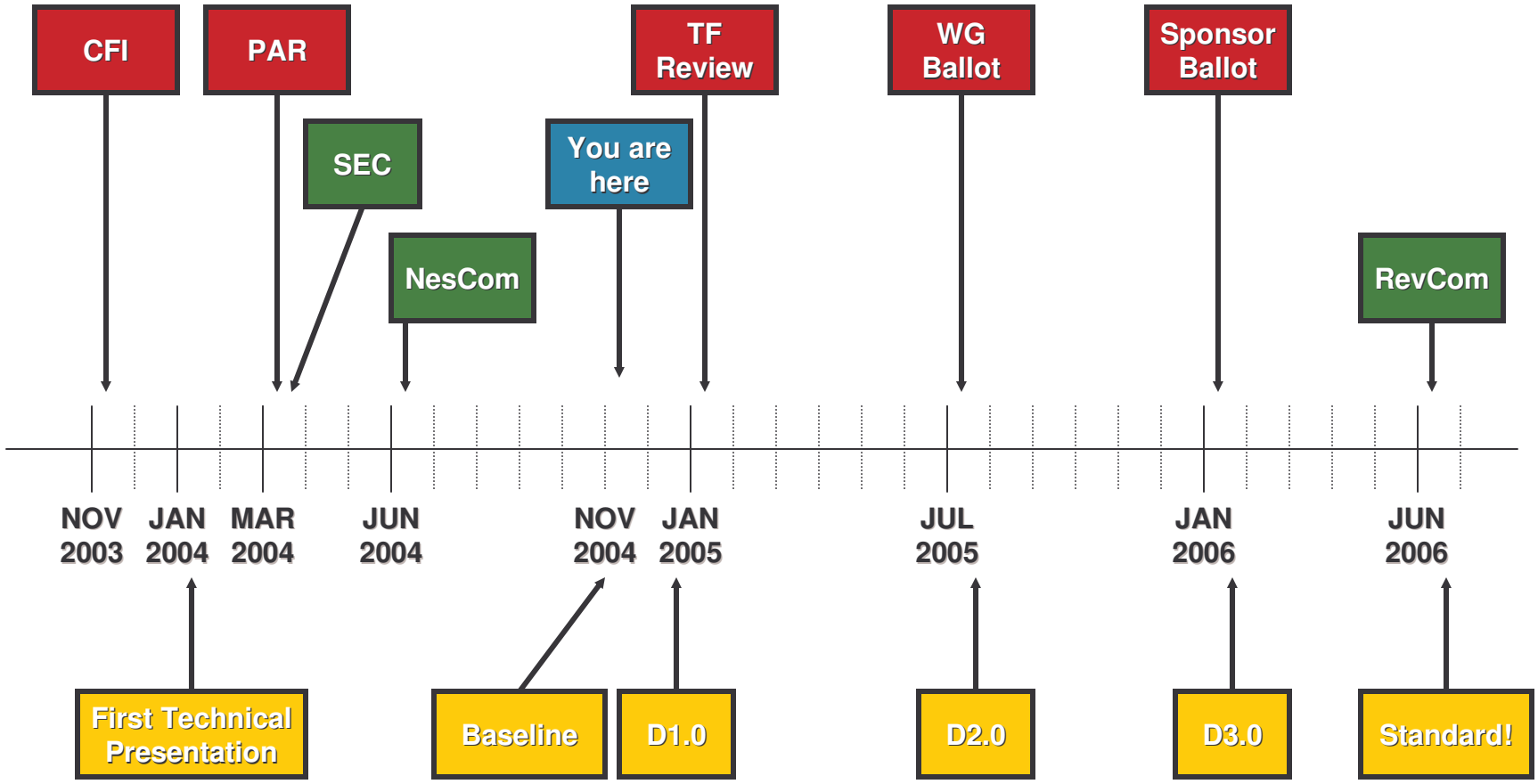
IEEE P802.3ap Overview (Current View)



Proposed Document Structure

- Clause X0 – Introduction to Ethernet Operation over Electrical Backplanes
- Clause X1 – Physical Medium Dependent (PMD) sublayer and baseband medium, type 1000BASE-KX
- Clause X2 – Physical Medium Dependent (PMD) sublayer and baseband medium, type 10GBASE-KX4
- Clause X3 – Physical Medium Dependent (PMD) sublayer and baseband medium, type 10GBASE-KR
- Annex 28E – Auto-Negotiation for Electrical Backplanes
- Appropriate changes to clauses 1, 30, 45, etc.

IEEE P802.3ap Timeline



Approved by Task Force (July 2004)

Plan for the Week

- Hear presentations
  - 24 Technical Presentations
  - Agenda:
    - http://ieee802.org/3/ap/public/nov04/agenda_01_1104.xls

- Work toward completion of the baseline.
  - Backplane channel specifications
  - 10GBASE-KR PMD

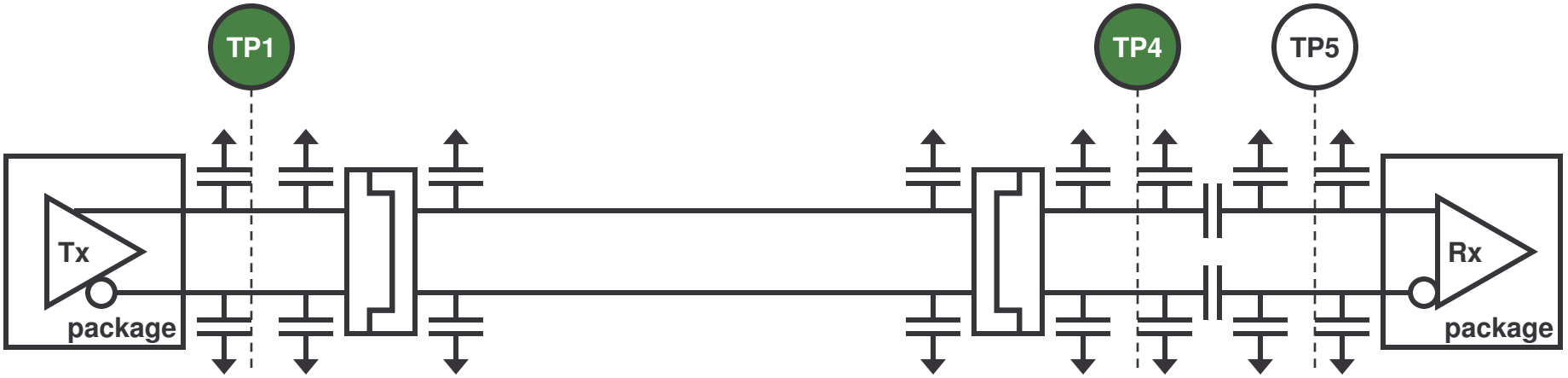
Thank you!

Back-up

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.

IEEE P802.3ap Link Model



X = Normative

Y = Informative

Note 1: This definition is consistent with conventions adopted in XAUI, OIF TFI-5 and CEI, and PICMG 3.1

Note 2: While only two connectors are shown, a three connector topology may also reside between TP1 and TP4, so long as the channel requirements are met.

Definition adopted via TF Motion September 2004 (Y:32, N:2, A:21)

Straw Polls: Channel

- Should the Signal Ad hoc consider models that fail the proposed Channel Ad Hoc SDD21 channel model mask? **(29/15)**
- Use channels as a basis for the Signaling Ad Hoc to begin simulation and analysis:
  - dambrosia_01_0904 **(31/18)**
  - anderson_rev6_model **(36/4)**
  - goergen_02_0904 1-3, 6-8, 14, 17, 18 **(44/1)**
  - peters_01_0904 **(28/16)**

Straw Polls: Signaling

- [Chicago] Which 10G Serial Signaling Proposal do you favor?
  - Unified signaling – gaither_01_0904.pdf **(43)**
  - PR4 signaling – altmann_02_0904.pdf **(18)**
  - PAM-4 signaling – brink_02_0704.pdf **(12)**
- [Chicago] Which 10G serial signaling scheme do you favor?
  - Duo-Binary **(38)**
  - NRZ **(37)**
  - EE-NRZ **(26)**
  - PR-4 **(20)**
  - PAM-4 **(9)**