Short-reach Cu Adopted Motions

EFM Task Force Plenary

Special Copper Session

EFM Copper Initial Objectives

- PHY for single-pair voice-grade copper, distance ≥ ~~2500ft~~ 750m, speed ≥ 10Mbps ~~aggregate~~ full duplex (~~St Louis, May 2001~~ Raleigh, January 2002)
- The point-to-point copper PHY shall recognize spectrum management restrictions imposed by operation in public access networks, including:
  - Recommendations from NRIC-V (USA)
  - ANSI T1.417-2001 (for frequencies up to 1.1MHz)
  - Frequency plans approved by ITU-T SG15/Q4, T1E1.4 and ETSI/TM6

(Portland, July 2001)

Short-reach Cu Baseline Motion

- Vancouver, July 2002:

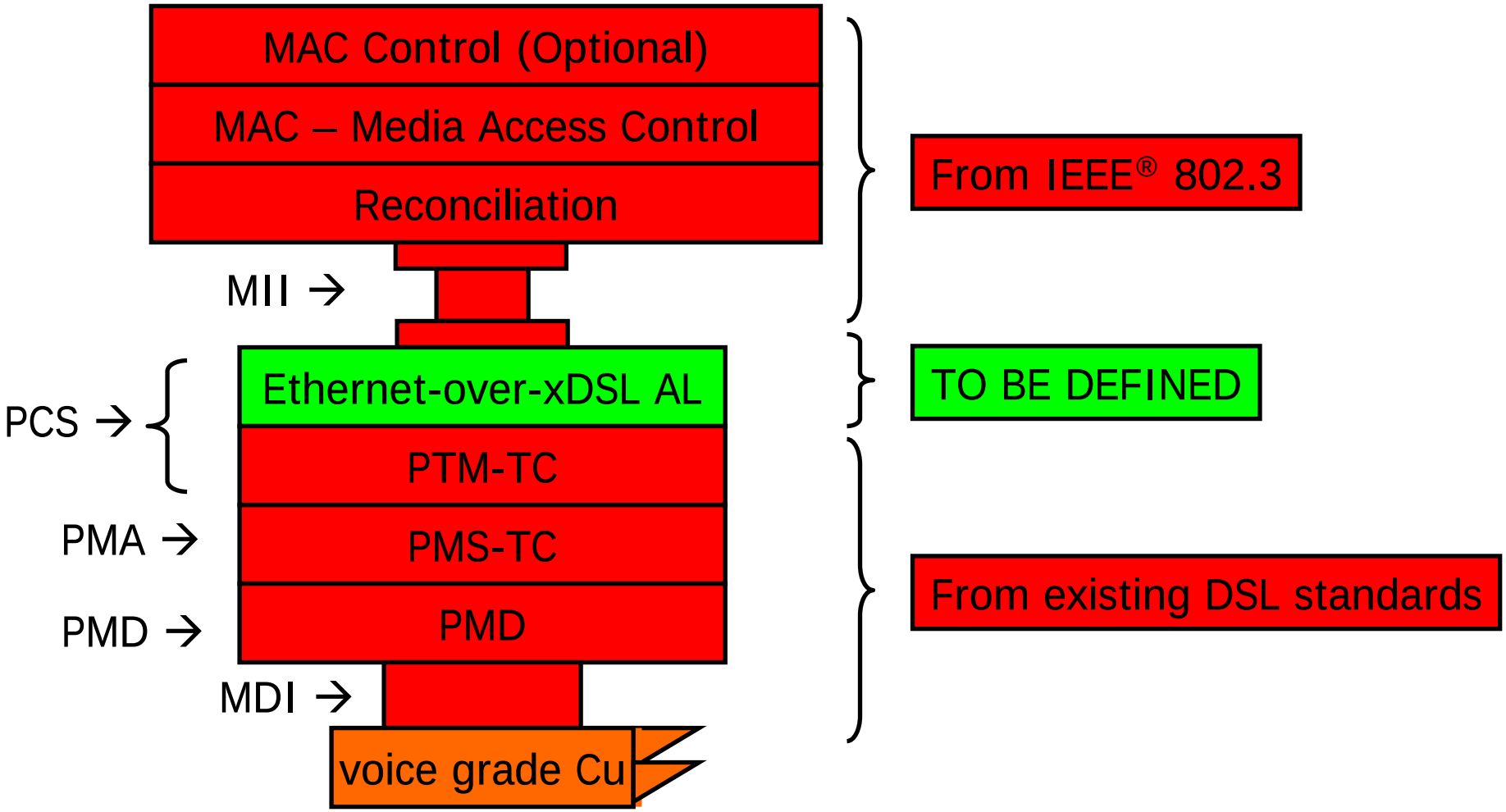
> Adopt presentation rezvani_1_0302.pdf (with addition of comments document, notes_to_editor_1_0302.doc, with the exception of note 13) as the basis of the first draft.
>
> Adopt omahony_copper_1_0702.pdf as the basis for the line code evaluation criteria. The line code selection process recognizes that Committee T1 has a goal of making a VDSL line code decision and will give due weight to that decision.

- Approve: 109 Don't Approve: 0 Abstain: 24

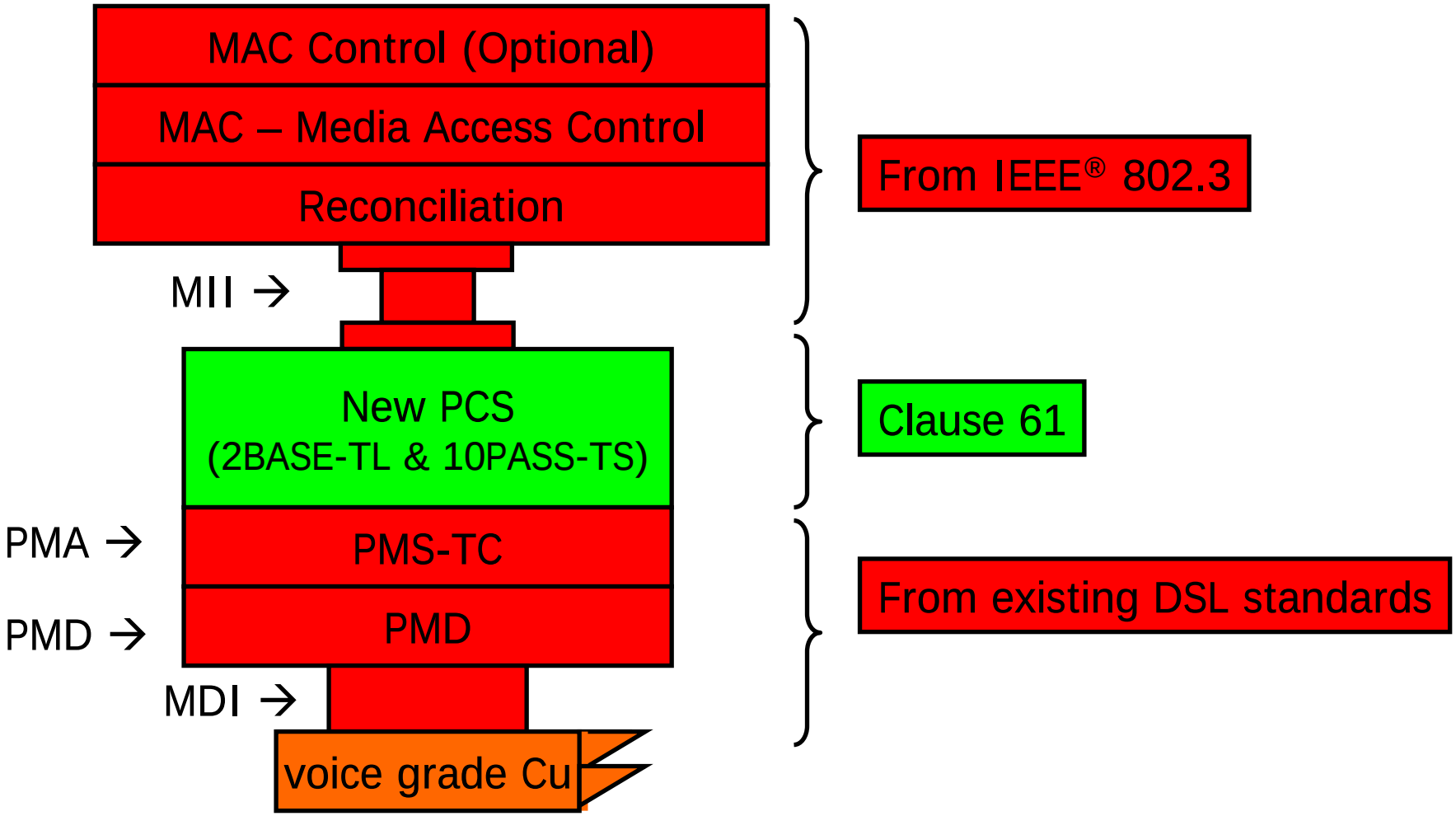
Rezvani Baseline

- Principles:
  - When applicable to EFM, take text from existing standards “as is”.
  - Add specifications for parts that are not standardized elsewhere.
- Short-Reach PMA-PMD → T1.424
- Generic PCS → G.993.1/Annex H

Rezvani Baseline (cont'd)



Rezvani Baseline (modified)



Notes To The Editor

1. As proposed by M. Beck et al., develop a generic “Ethernet-over-xDSL Adaptation Layer” that fits on the γ-interface and rides on the top of the PHY.
2. Shift brackets down on slide 10.
3. ITU-T should be referenced at top of slide 17.
4. Connector reference on slide 28 needs to be flagged as open issue.
5. Slide 5 should include a statement that we are not intending to define a DSL definition, we are using VDSL as the PMD layers of the PHY.

Notes To The Editor (cont'd)

6. Slide 28: List of band plans should state the band plans supported are 998 and 997.
7. Slide 28: There will be work to research and possibly define other band plans.
8. Slide 25: Add the bullet and insert into the Baseline text: The linecode evaluation and selection criteria will be based on the IEEE 802 5 Criteria. The term "based" to mean the translation of the intent of the Criteria into valid evaluation points.
9. Slide 13: Add "VDSL standard" instead of "VDSL".

Notes To The Editor (cont'd)

10. Slide 13: Does not preclude either group to enhance their performance with other methods such as TCM.
11. Slide 6: Other operational modes may include dynamic frequency allocation to improve reach. This mode shall be spectrally compliant with referenced band plans.
12. Dual Latency needs to be discussed.
13. Substitute enhanced-SHDSL for VDSL.

Line Code Evaluation Criteria

- Define selection criteria for evaluating technologies proposed to meet the 10Mbps technologies proposed to meet the 10Mbps duplex @ 750m Objective
- Criteria for other rate/reach objectives TBD (currently under discussion)

Line Code Evaluation Criteria (cont'd)

Test name	Loop no.	Target downstream rate	Target upstream rate	Noise(s)
1.4 Symmetric 10/10	Loop 1, TP1 x=2→1600m Y=2→1600m	≥ 10 Mbps for x,y ≤ 750 m	≥ 10 Mbps for x,y ≤ 750 m	AWGN + 20 self disturbers
2.4 Symmetric 10/10	Loop 1, TP1 x=2→1600m Y=2→1600m	≥ 10 Mbps for x,y ≤ 750 m	≥ 10 Mbps for x,y ≤ 750 m	AWGN + 20 self disturbers + RFI
3.4 Symmetric 10/10	Loop 1, TP1 x=2→1600m Y=2→1600m	≥ 10 Mbps for x,y ≤ 750 m	≥ 10 Mbps for x,y ≤ 750 m	AWGN + 20 self disturbers + Noise A
4.4 Symmetric 10/10	Loop 1, TP1 x=2→1600m Y=2→1600m With 50ft BT	≥ 10 Mbps for x,y ≤ 750 m	≥ 10 Mbps for x,y ≤ 750 m	AWGN + 20 self disturbers

Line Code Evaluation Criteria (cont'd)

- POTS Overlay
- Impulse Noise Tolerance
- Egress Control
- Upstream Power Back-Off
- Additional Evaluation Criteria:
  - Other noise models, in-building wiring model, different self-disturber loop lengths
  - Efficiency
  - Flexibility

Due Weight

- T1.424/Trial-Use has two linecodes; T1E1.4 is currently in the process of making a linecode decision.
- Through liaison letters and cross-membership, IEEE802.3ah and T1E1.4 have adjusted their timelines to allow for an exchange of criteria and evaluation results.
- E. Eckert's presentation will focus on T1E1.4 status.

Common Copper Baselines

- “To include an optional specification for combined operation on multiple copper pairs.” (Austin, November 2001) This objective is addressed by the Fosmark Baseline.
- MAC-PHY Rate Matching is addressed by the Marris Baseline.
- Port Control is addressed by the Simon Baseline.