

# Timeline Implications

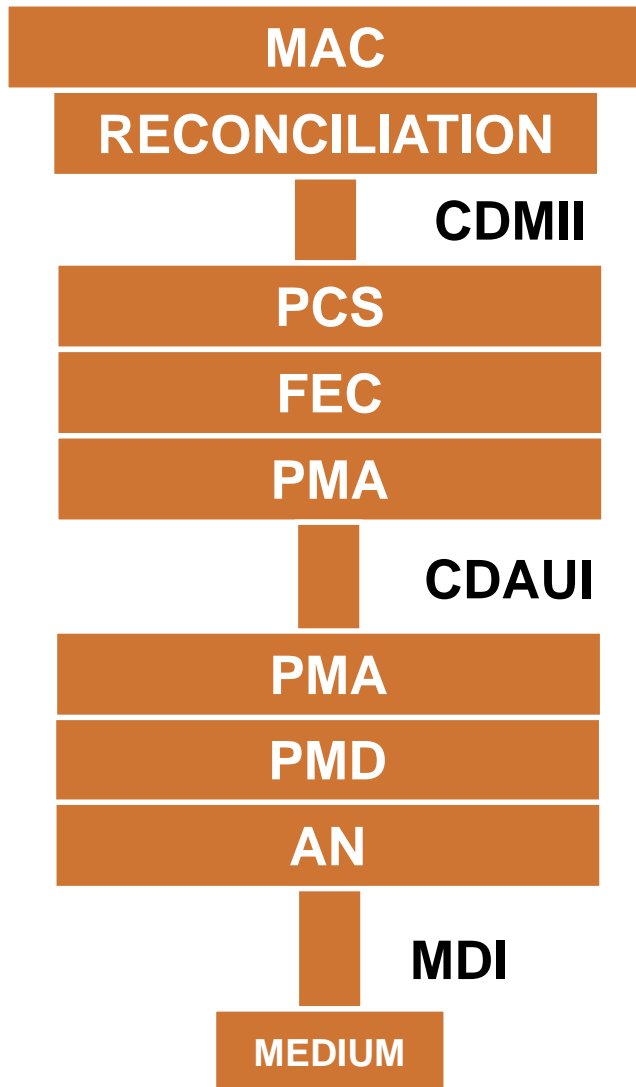
IEEE P802.3bs 400GbE Task Force  
IEEE 802 Mar 2015 Plenary

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Mar 10, 2015

# Issues – Bottom Up (dambrosia\_3bs\_01a\_0514)



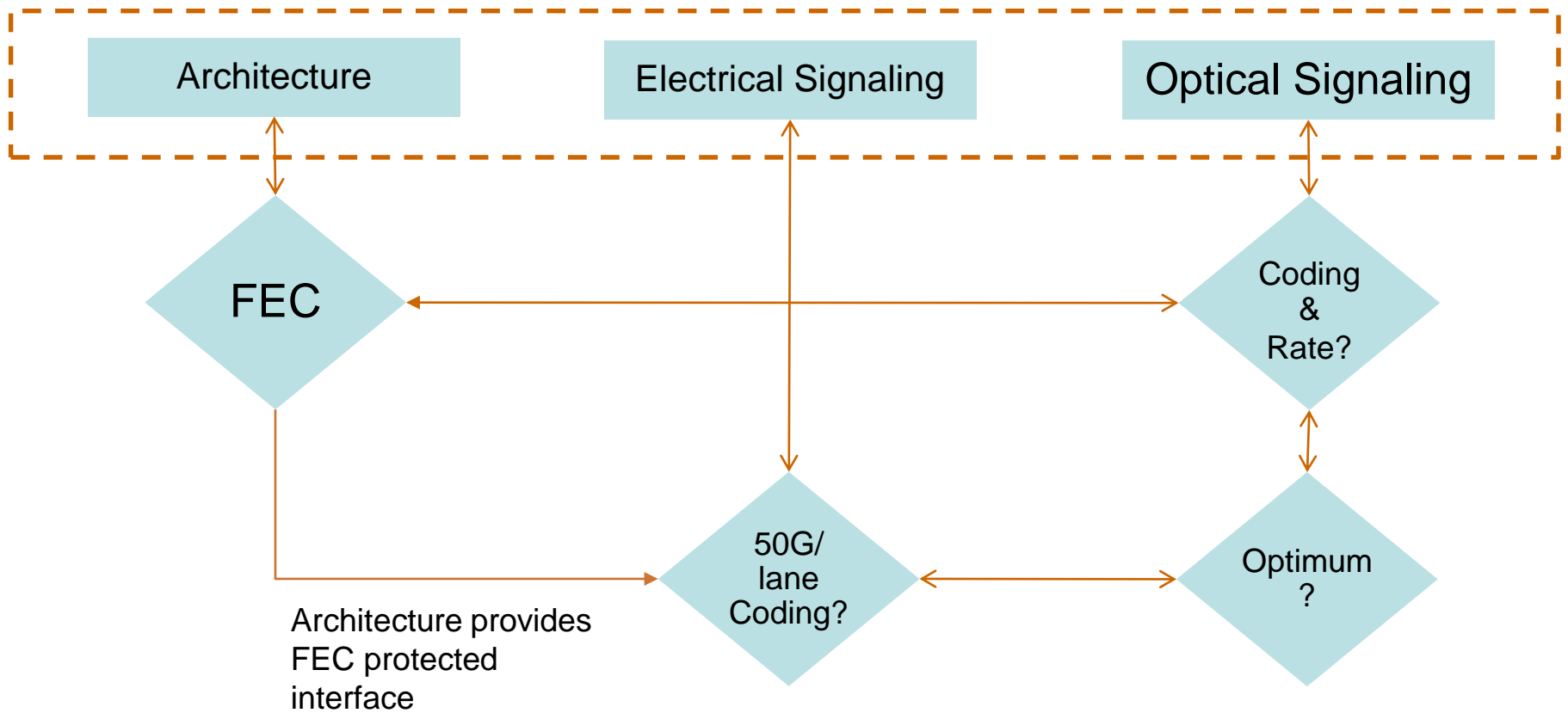
- Medium- Channel Models
- MDI?
- PMD
  - 16x25G / 8 x50G / 4x100G? (Modulation, Parallelization)
  - Breakout?
- CDAUI / PMA
  - PMA Functionality
  - 802.3ba architecture? Between 2 PMA sublayers?
  - Channel / Connector for module?
  - Signaling characteristics
  - FEC?
    - Per electrical interface? FEC for the entire link?
  - CDAUI: Above / below PCS?
  - Number / placement within layer structure
- FEC (see next slides)
  - Type?
  - Budgeting?
  - Multi-generation considerations
- PCS
  - Similar 802.3ba PCS Structure?
  - Bit versus Block encoding?
  - Embedded FEC Specific to PHY?
- CDMII
  - Extender Sublayer?

Topic Matter	Motion	Reference Presentation
Architecture	Motion #3, Jan 15: Move to adopt slides 4 and 8 from dambrosia_3bs_02b_0115 as baseline architecture.	<a href="http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_02b_0115.pdf">http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_02b_0115.pdf</a>
RS / CDMII	Motion #3, July 14: Move to adopt the baseline for the CDMII logical interface as shown in slide 5 of gustlin_3bs_03_0714.pdf.	<a href="http://www.ieee802.org/3/bs/public/14_07/gustlin_3bs_03_0714.pdf">http://www.ieee802.org/3/bs/public/14_07/gustlin_3bs_03_0714.pdf</a>
Electrical Interfaces (C2C and C2M)	Motion #4, Sept 14: Move to adopt 16 x 25Gb/s and 8 x 50Gb/s as the basis for the lane rates for any optional C2C and C2M electrical interfaces	
C2C / C2M 25G Electrical	Motion #6, Sept 14: Move to adopt the P802.3bm C2C and C2M specifications with current values (except that the BER requirement is TBD) as a baseline draft for the 16 x 25Gb/s electrical interfaces	
C2C Informative Channel	Motion #6, Jan 15: Move to adopt the following equation as the informative insertion loss equation for CDAUI-8 chip-to-chip electrical I/O interface $IL \leq \{ 1.083 + 2.543\sqrt{f} + 0.761f \quad 0.01 \leq f \leq 28.05\text{GHz} \} \text{ dB}$	
C2M Informative Channel	Motion #8, Jan 15: Move to adopt the following equation as the informative insertion loss equation for CDAUI-8 chip-to-module electrical I/O interface $IL \leq \{ 1.076(0.075 + 0.537\sqrt{f}) + 0.566f \quad 0.01 \leq f \leq 28.05\text{GHz} \} \text{ dB}$	
EEE	Motion #4, Jan 15: Move to adopt the EEE baseline proposed in marris_3bs_01_0115.pdf slide 7.	<a href="http://www.ieee802.org/3/bs/public/15_01/marris_3bs_01_0115.pdf">http://www.ieee802.org/3/bs/public/15_01/marris_3bs_01_0115.pdf</a>
OTN	Motion #5, Jan 15: Move to adopt slide 10 of trowbridge_3bs_01a_0115.pdf as the baseline for the OTN mapping reference point	<a href="http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_01a_0115.pdf">http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_01a_0115.pdf</a>
100m MMF	Motion #3, Nov 14: Move to adopt the proposal in slides 6 to 16 in king_3bs_02a_1114.pdf as the baseline proposal for the P802.3bs objective to “provide physical layer specifications which support link distances of at least 100 m of MMF” (400GBASE-SR16)*	<a href="http://www.ieee802.org/3/bs/public/14_11/king_3bs_02a_1114.pdf">http://www.ieee802.org/3/bs/public/14_11/king_3bs_02a_1114.pdf</a>
10km SMF	Motion #4, July 14: Move that 10km 400GbE SMF PMD will use a duplex fiber solution.	

# Proposal Summary

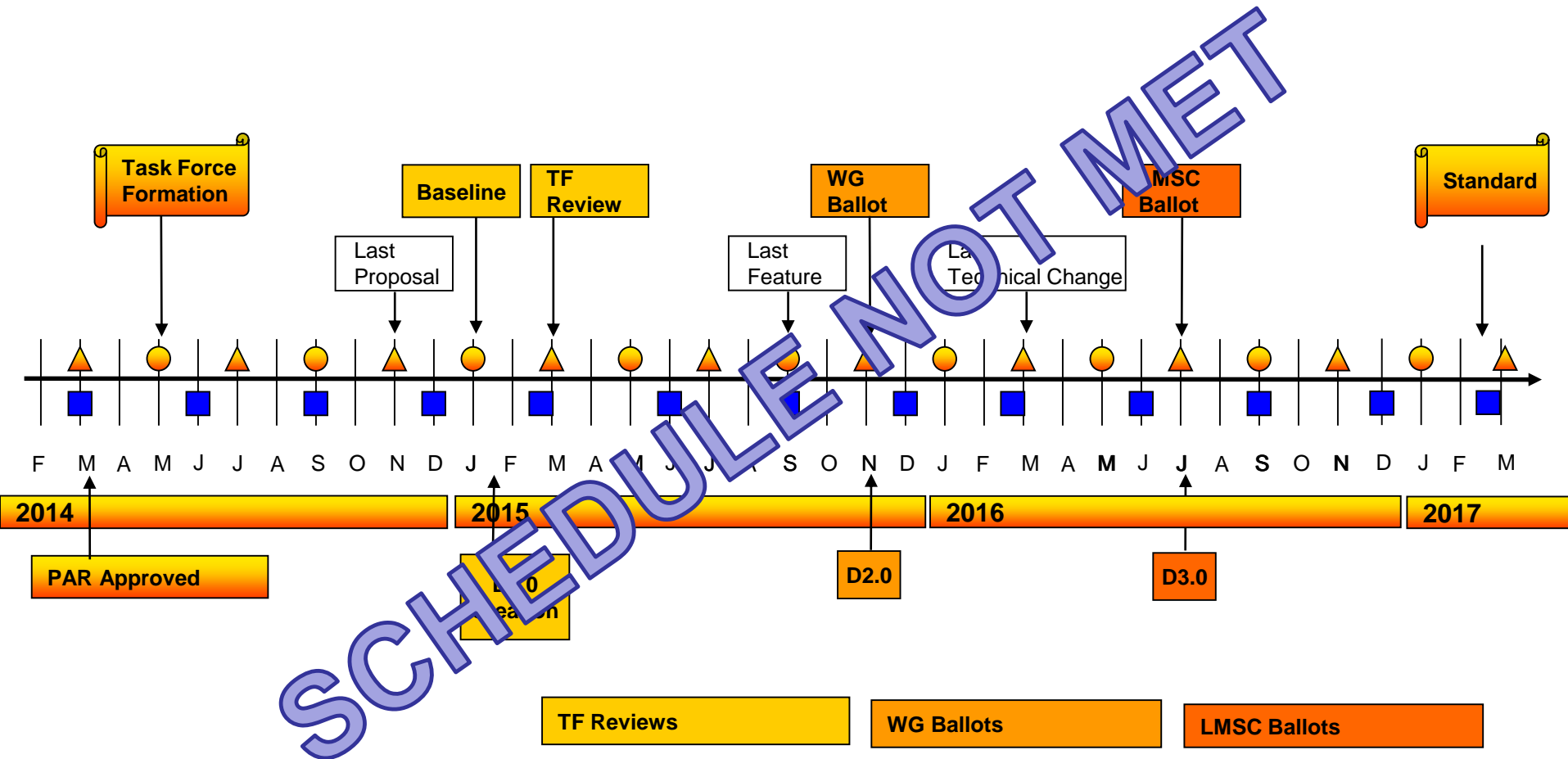
Item	Status	Comments
Architecture	Passed	
PCS	Pending	PMD Selection influences FEC Selection & 4x100 versus 1x400
FEC	Pending	PMD Selection
PMA	Pending	PMD / Electrical interfaces selection
EEE	Passed	
OTN	Passed	Module re-use still pending
C2C Electrical	Pending	All: (y/n/a): 49 / 27 / 32. Will optical PMD choice impact?
C2M Electrical	Pending	
MMF	Passed	Will SMF PMD choice impact?
500m SMF	Pending	All proposals based on 4 fibers, Modulation debates, Lane Rate Debates (50G versus 100G)
2km SMF	Pending	All proposals duplex fiber, Modulation debates, Lane Rate Debates (50G versus 100G)
10km SMF	Pending	All proposals duplex fiber, Modulation debates, Lane Rate Debates (50G versus 100G)

# Interrelations Between Technical Decisions



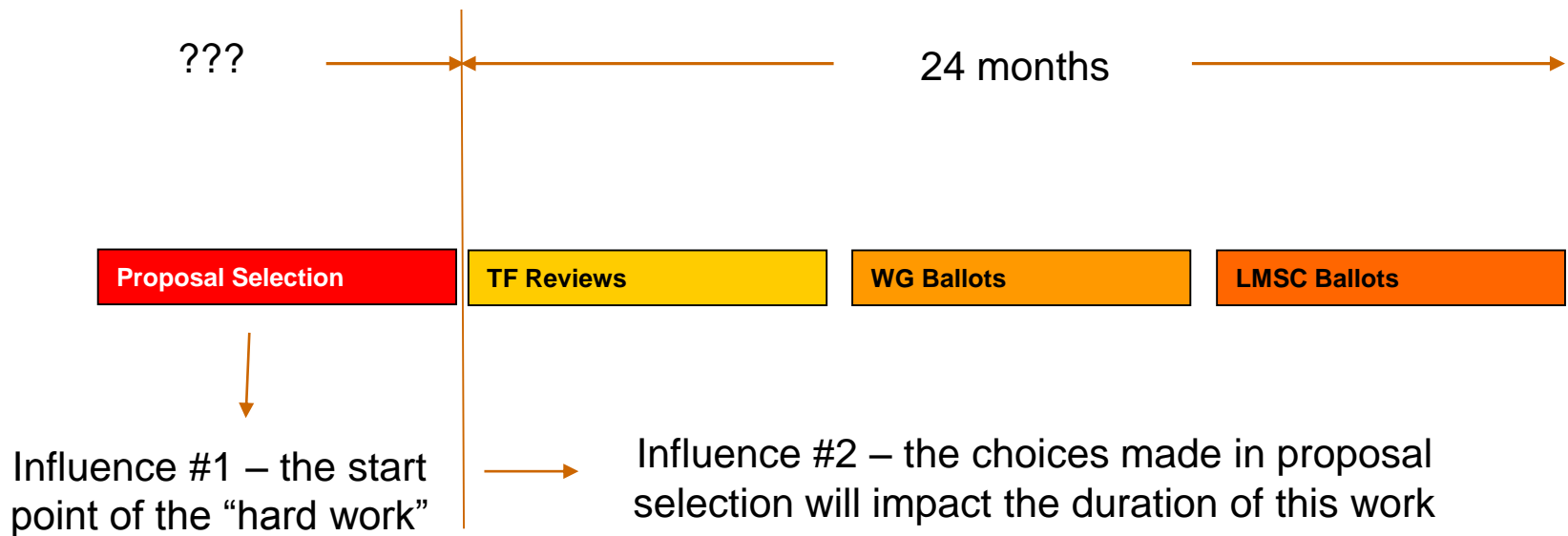
Note – may differ for each PMD.

# IEEE P802.3bs 400GbE Adopted Timeline



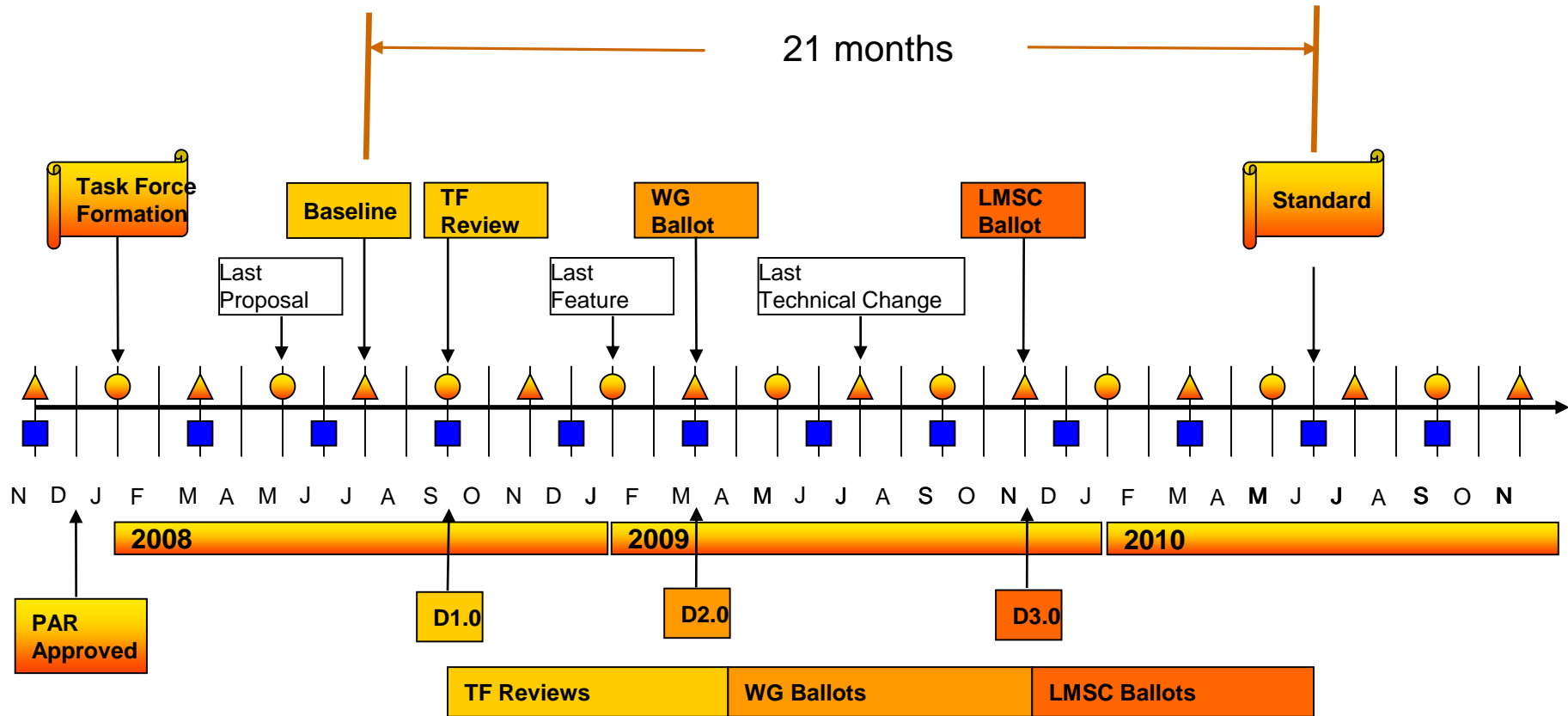
Adopted by IEEE P802.3bs 400GbE Task Force, May 2014 Interim.

# Revisiting the Timeline



PAR EXPIRES DEC 31, 2018

# Revisiting IEEE P802.3ba – Best Case



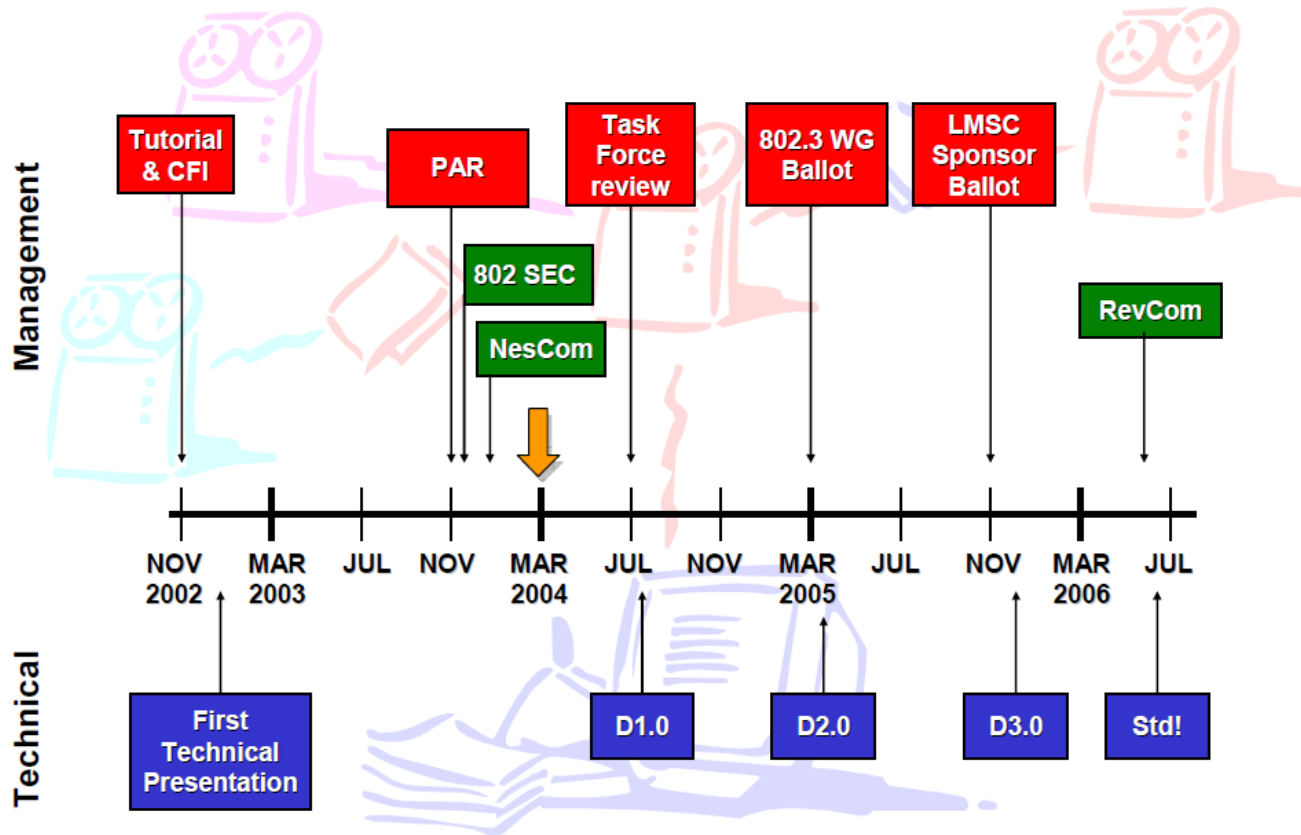
\* Adopted by IEEE P802.3ba TF at March 08 Plenary



# Looking @ 802.3an

## 10GBASE-T Timeline

Development of a new signaling scheme



# Summary

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- Two Phases to this effort
  - Phase 1 – Selecting Proposals
  - Phase 2 – Writing the Standard
- Phase 1 gating item – but heavy influence then on Phase 2
  - 24 months – estimated development for a new coding scheme in room full of experts?
- For P802.3bs – how long for Phase 2?
  - Multiple new schemes?
  - DMT – no room full of experts

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# Thank You!