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Update on IEEE 802.3BA 40 and 100GE

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IEEE-SA Standards board operations manual Jan 2005

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Milestone: IEEE 802.3ba Draft version 1.0

- Long document (292 pages)
- Does capture all the objectives
- Technical specifications could and will be modified and or clarified as implementations take off.
- Lot of editorial work still necessary
- Draft 2.0 will be technically complete and go up for WG ballot
  - *Scheduled for march 2009*
- When schedule will hold, the standard for both 40 and 100GE will be delivered June 2010

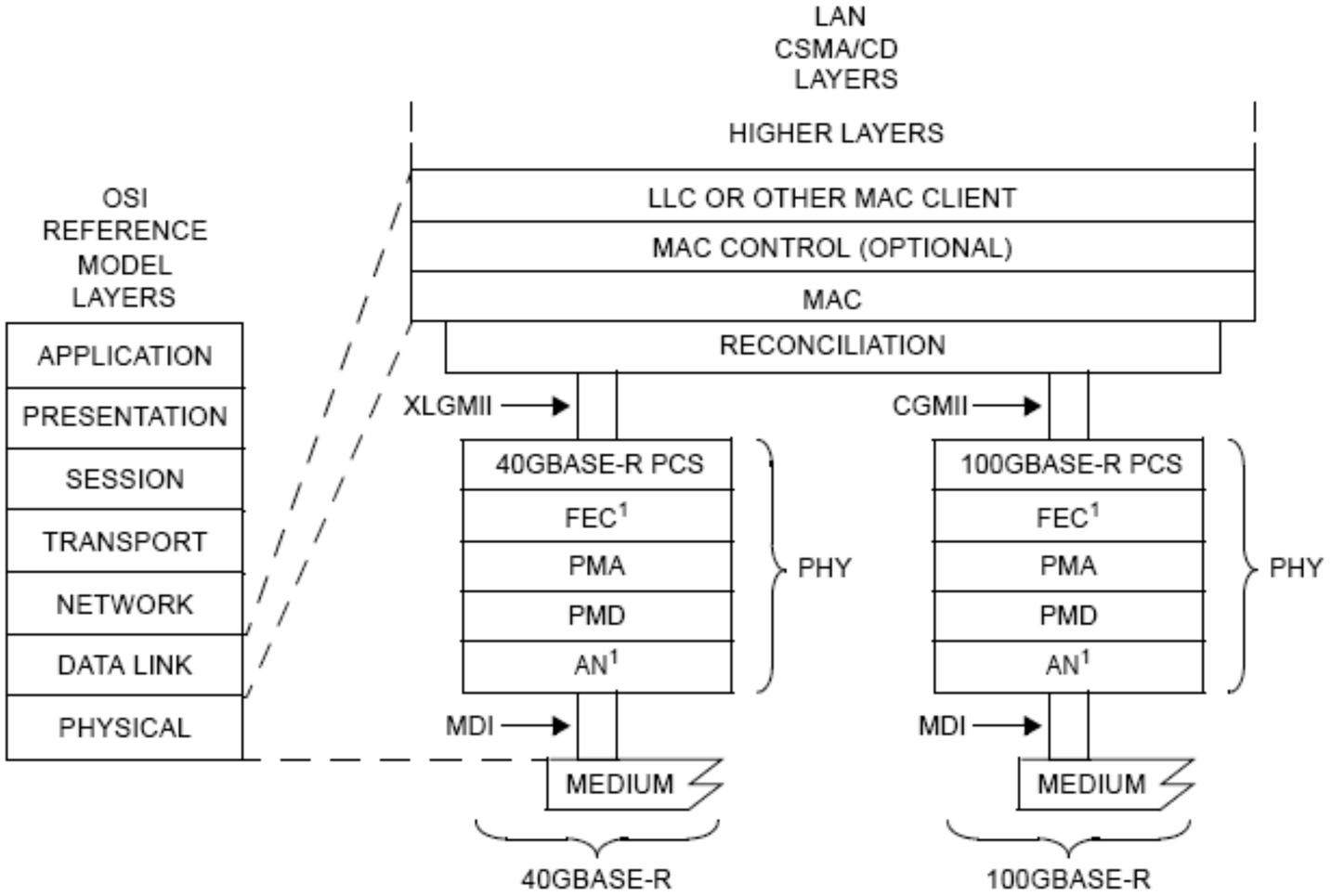
Reach objectives and physical layer specifications

	40GE	**100GE**	**Solution**
1m Backplane	40GBase-KR4	*	4 X 10 Gbit/s (reuse 10GBase-KR)
10m Copper	40GBase-CR4	100GBase-CR10	n X 10 Gbit/s (reuse 10GBase-KR)
100m OM3 MMF	40GBase-SR4	100GBase-SR10	n x 10 Gbit/s
10km SMF	40GBase-LR4	100GBase-LR4	4 x 10 Gbit/s 4 x 25 Gbit/s
40km SMF	*	100GBase-ER4	4 x 25 Gbit/s

Optical Transport Network

- One of the objectives is to provide "appropriate support for OTN"
  - *40GE: define transparant mapping of 40GE into existing ODU3*
    - Transcoding to be specified by ITU-T SG15
    - Coordination between ITU-T and IEEE on control block types
  - *100GE: ITU to define a new ODU4 tier*

40GE, 100GE architecture



AN = AUTO-NEGOTIATION
CGMII = 100 Gb/s MEDIA INDEPENDENT INTERFACE
FEC = FORWARD ERROR CORRECTION
LLC = LOGICAL LINK CONTROL
MAC = MEDIA ACCESS CONTROL
MDI = MEDIUM DEPENDENT INTERFACE
PCS = PHYSICAL CODING SUBLAYER
PHY = PHYSICAL LAYER DEVICE
PMA = PHYSICAL MEDIUM ATTACHMENT
PMD = PHYSICAL MEDIUM DEPENDENT
XLGMII = 40 Gb/s MEDIA INDEPENDENT INTERFACE

NOTE1—CONDITIONAL BASED ON PHY TYPE

- Consistent with existing Ethernet architecture
- Same frame format
- Changes are below the MAC
- New interface definitions

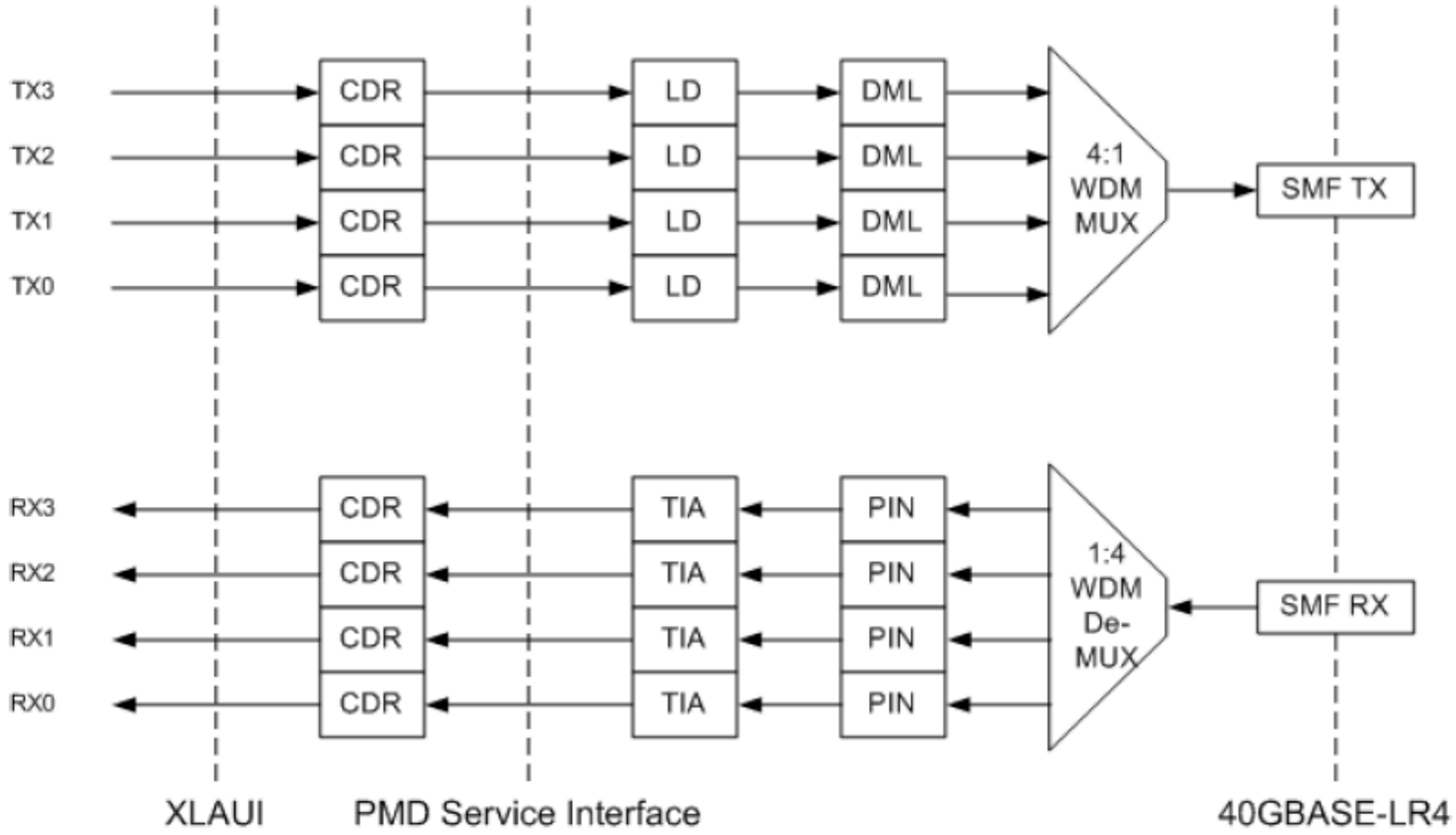
40GBase-CR4, 100GBase-CR10

- Reusing the 10GBase-KR architecture (802.3ap)
  - *40GBase-CR4: 4 x 10Gbit/s*
  - *100GBase-CR10: 10 x 10Gbit/s*
- Cable parameters based on 10GBase-CX4
- Autonegotiation
- Connector
  - *4 x MDI : QSFP*
  - *10 x MDI: SFF-8092*

40GBase-SR4 and 100GBase-SR10
100m OM3 MMF

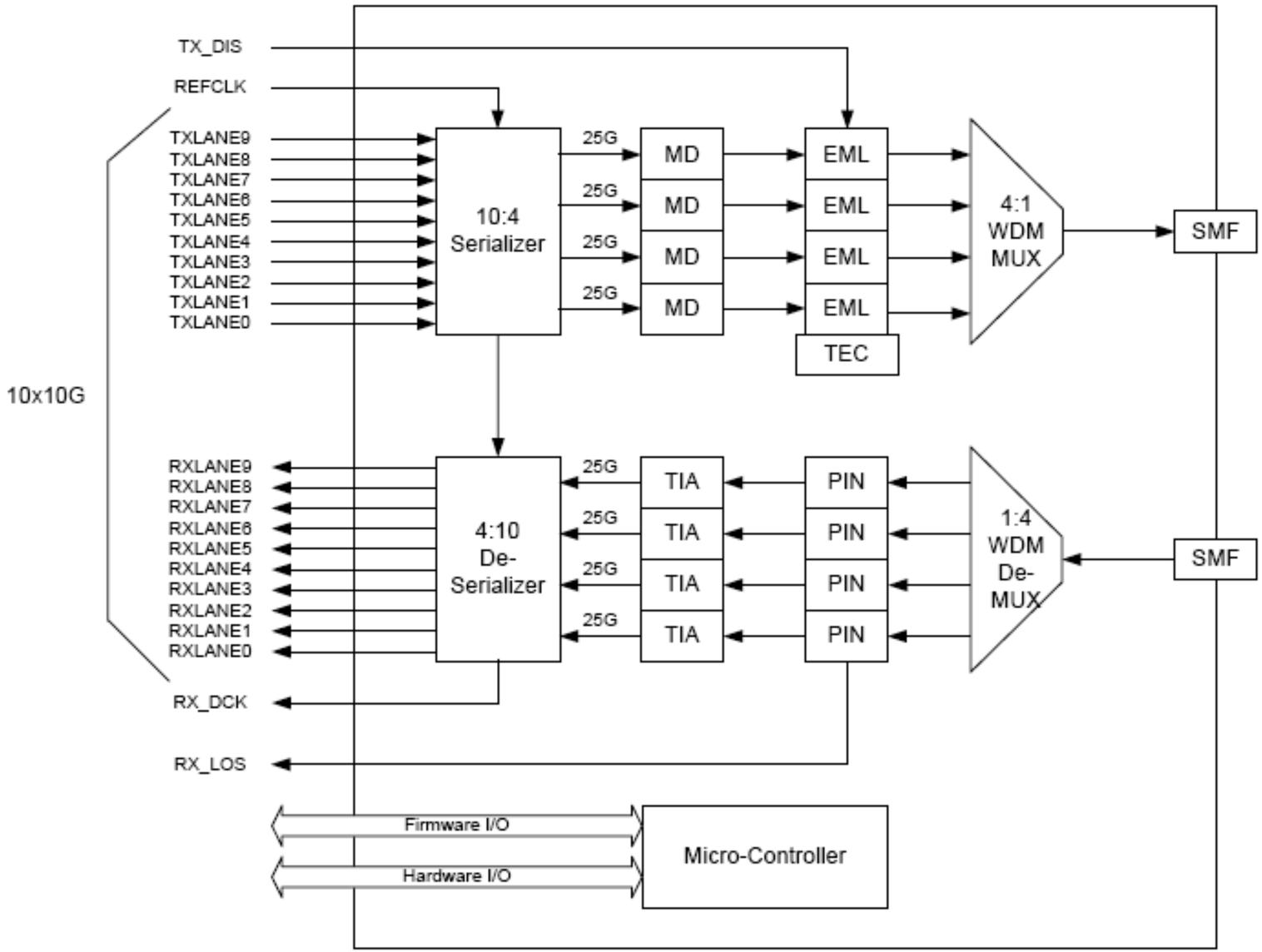
- 40GBase-SR4
  - *4 parallel lanes for both Tx and Rx of over 4+4 parallel fibers*
  - *Connector is high density small form factor*
- 100GBase-SR10
  - *10 parallel lanes for both Tx and Rx of over 10+10 parallel fibers*
  - *Connector is high density small form factor*
- There seems to be a lot of interest in going beyond 100m
  - *Ongoing debate on how far the adopted proposal can actually go? for example over OM4 MMF*

40GBase-LR4



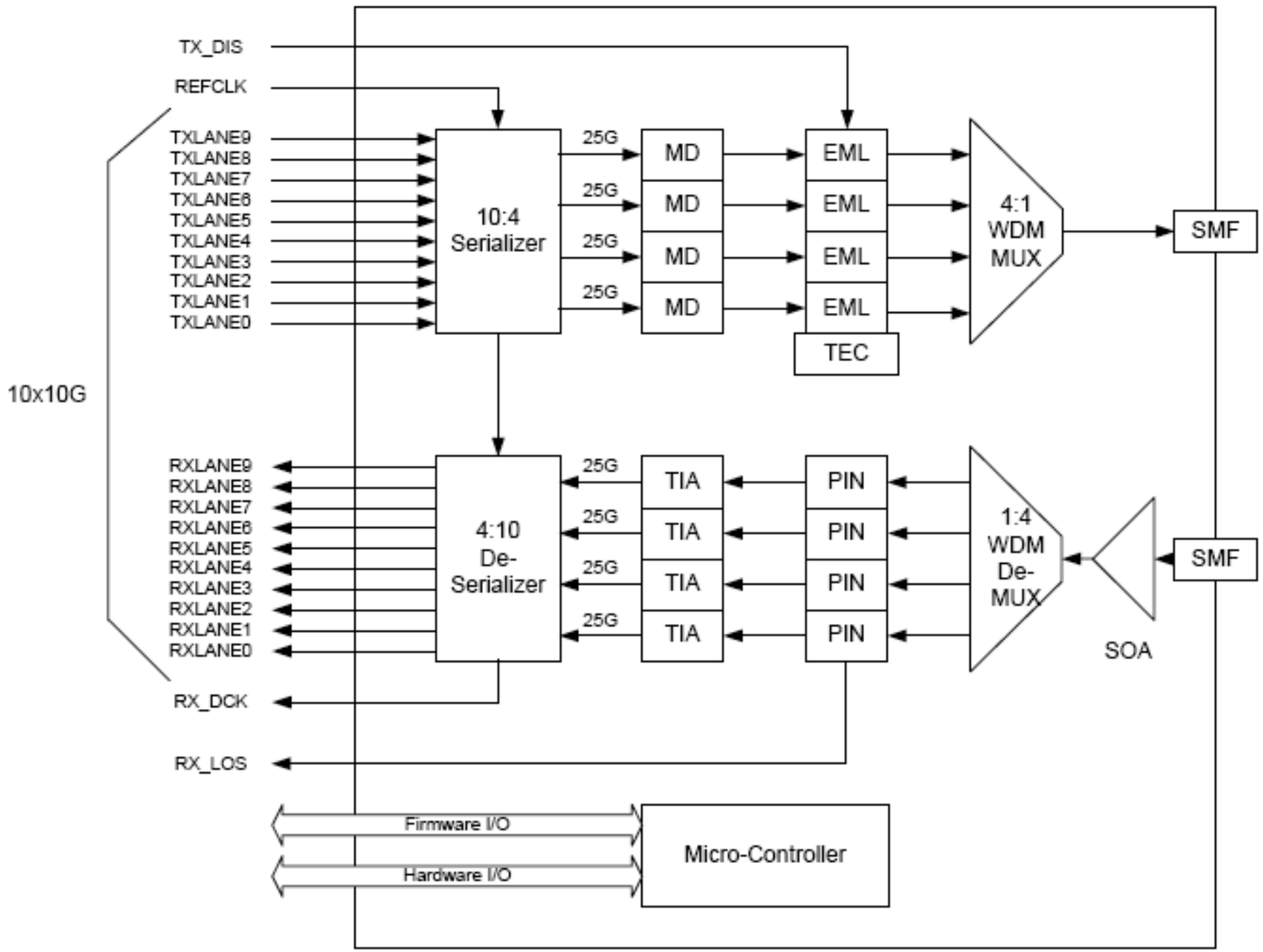
- CWDM baseline grid
- ITU G694.2
- 1270, 1290,1310, 1330nm

100GBase-LR4



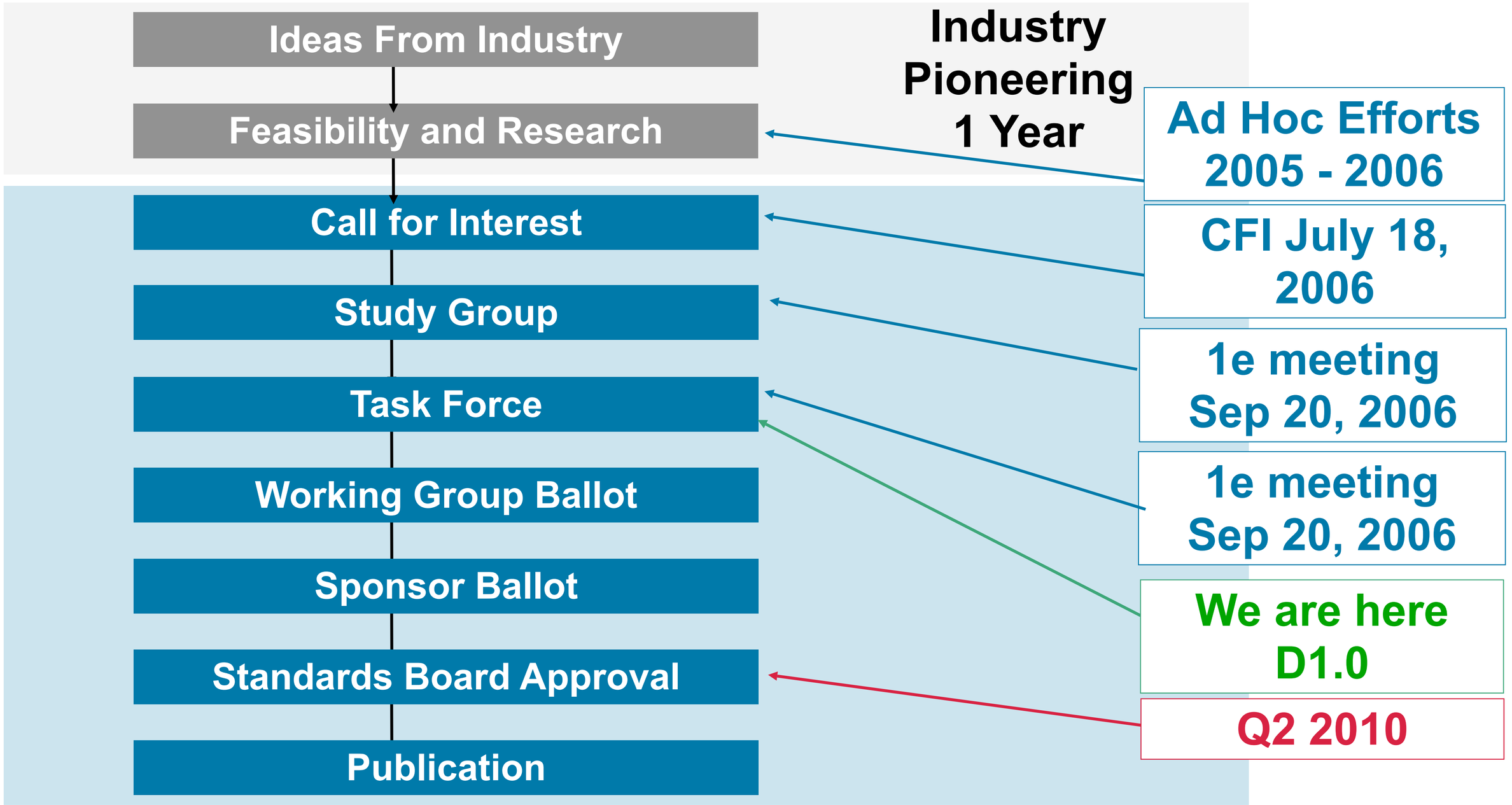
- LAN WDM baseline grid
  - *ITU G694.1*
- 1295, 1300, 1305, 1310

100GBase-ER4

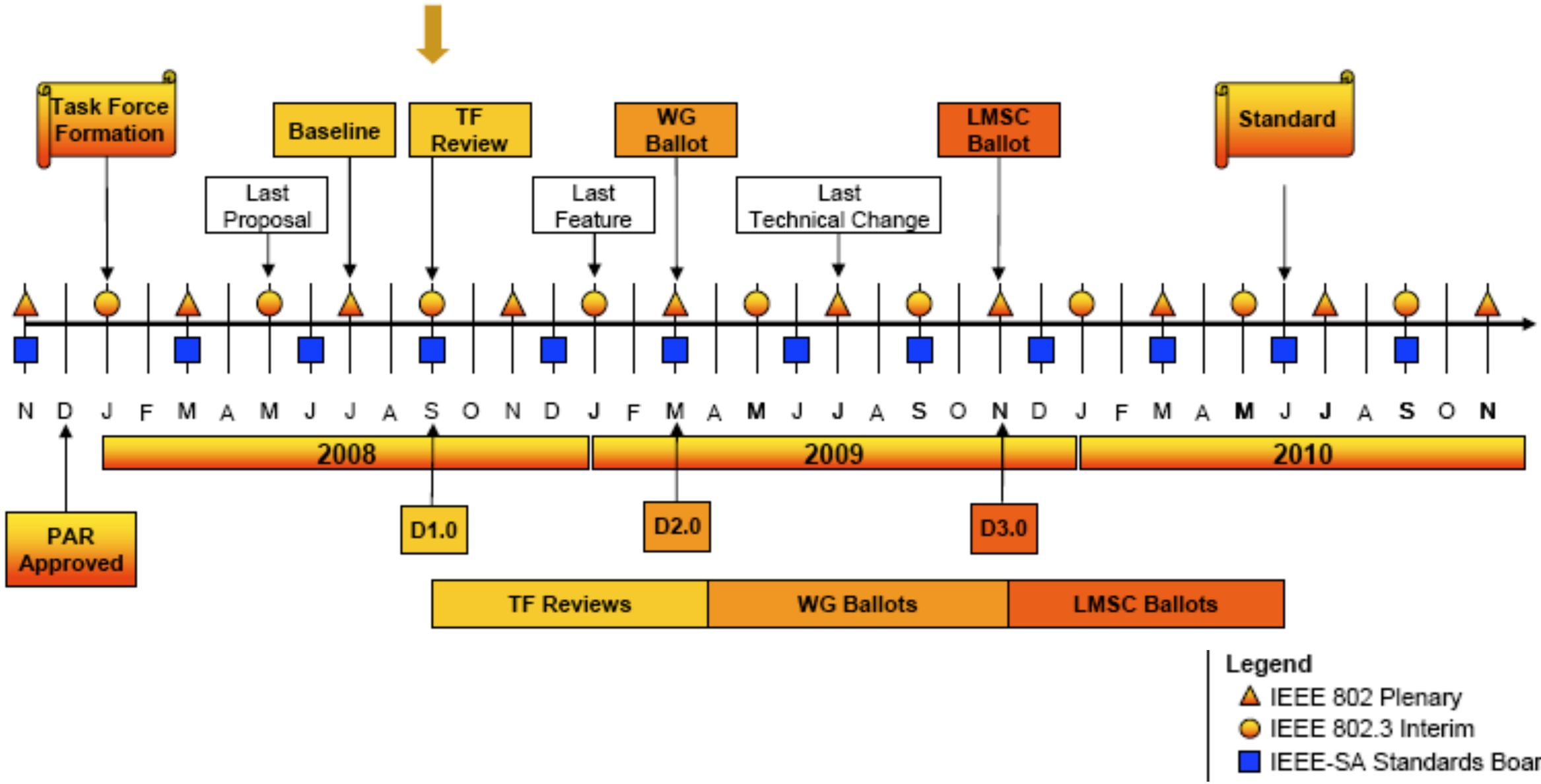


- LAN WDM baseline grid
  - *ITU G694.1*
- 1295, 1300, 1305, 1310

Where is the standard proces now?



IEEE802.3ba Task Force timeline



Next meetings

- November 2008 meeting
  - November 9 - 14 Dallas, TX
  - Draft 1.0 comment resolution, working towards Draft 2.0
- Januari 2009 meeting
  - Januari 12 - 16 New Orleans
- March 2009 plenary
  - March 8 - 13 Vancouver
- More information on:
  - *http://grouper.ieee.org/groups/802/3/ba*

Questions?