

Joint ITU/IEEE Workshop on Ethernet Emerging Applications and Technologies

Extended EPON optics project status and future outlook

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- New applications for EPON are emerging, requiring support for higher power budget(s) for a number technological reasons, on different markets, including traditional telco as well as emerging MSO application space.
- IEEE 802.3 WG was recognized as the best forum to address these new requirements in an interoperable manner.
- It was recognized that a Study Group within IEEE 802.3 WG was needed to examine this topic in more detail and provide guidance for the industry on EPON evolution in the higher power budget domain.
- A new Extended EPON Study Group was formed, with at least 13 companies indicating their support for this effort.

IEEE P802.3bk Background (II)

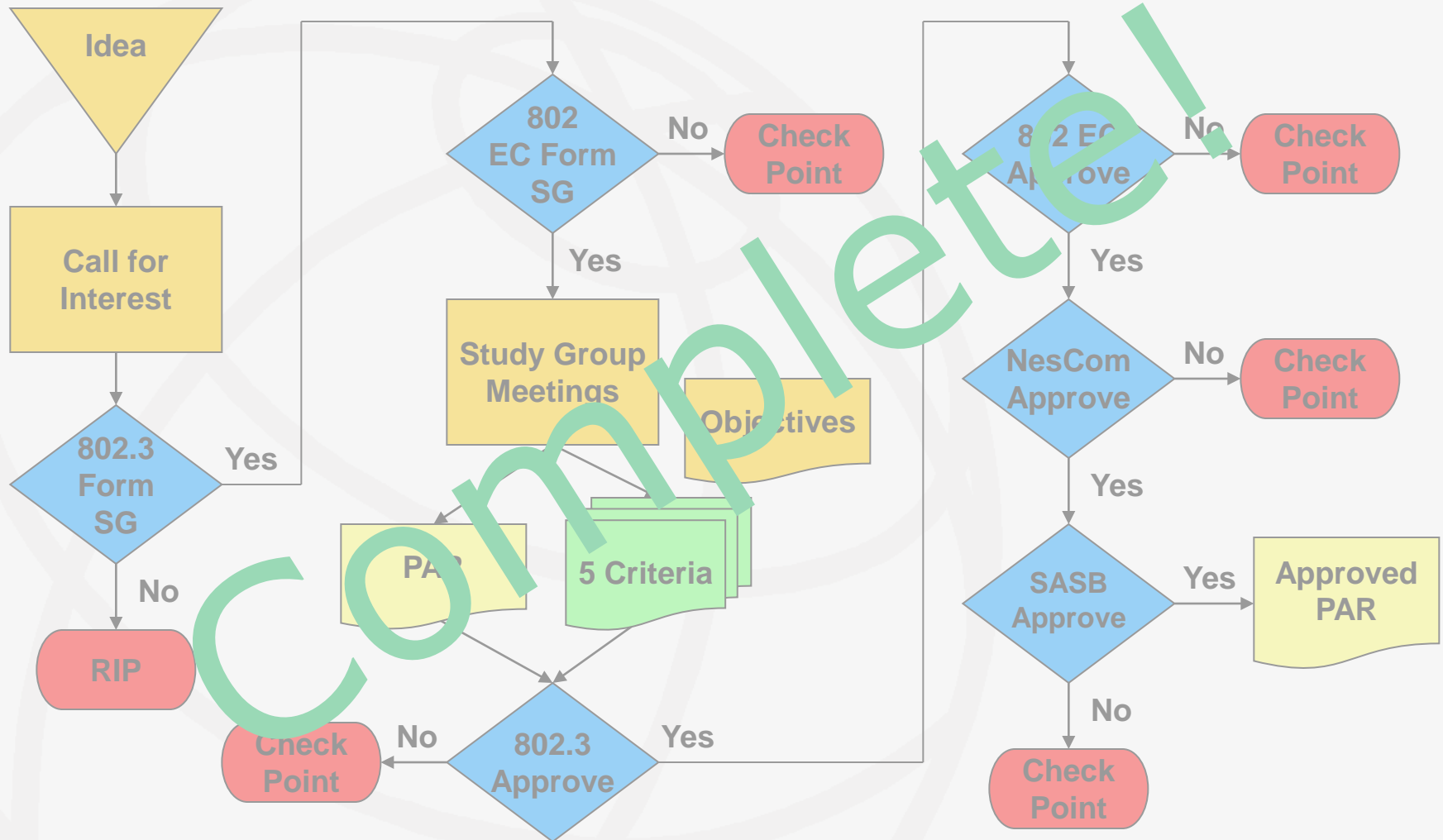
- The Extended EPON Study Group held the total of 4 meetings, working on the project Objectives, 5 Criteria and Project Authorization Request, which were approved in March 2012.
- The P802.3bk Task Force was formed, the third meeting of which will take place in the following week in Geneva, hosted by ITU.
 - The Task Force is currently working on completing the standard draft and preparing it for the Working Group review.
 - All interested in participating in this process, please sign up for the IEEE P802.3bk Task Force reflector at http://www.ieee802.org/3/EXTND_EPON/reflector.html

- Support subscriber access networks using point-to-multipoint topologies on SM optical fiber
- EPON PHY(s) to have a BER better than or equal to 10^{-12} at the MAC/PLS service interface
- Provide physical layer specifications:
 - for 1G-EPON supporting a downstream channel insertion loss of 29dB, compatible with PR(X)30 upstream channel insertion loss;
 - for 1G-EPON supporting a split ratio of at least 1:64 at a distance of at least 20 km;
 - for 10G-EPON, supporting a split ratio of at least 1:64 at a distance of at least 20 km;

IEEE P802.3bk Informal Objectives

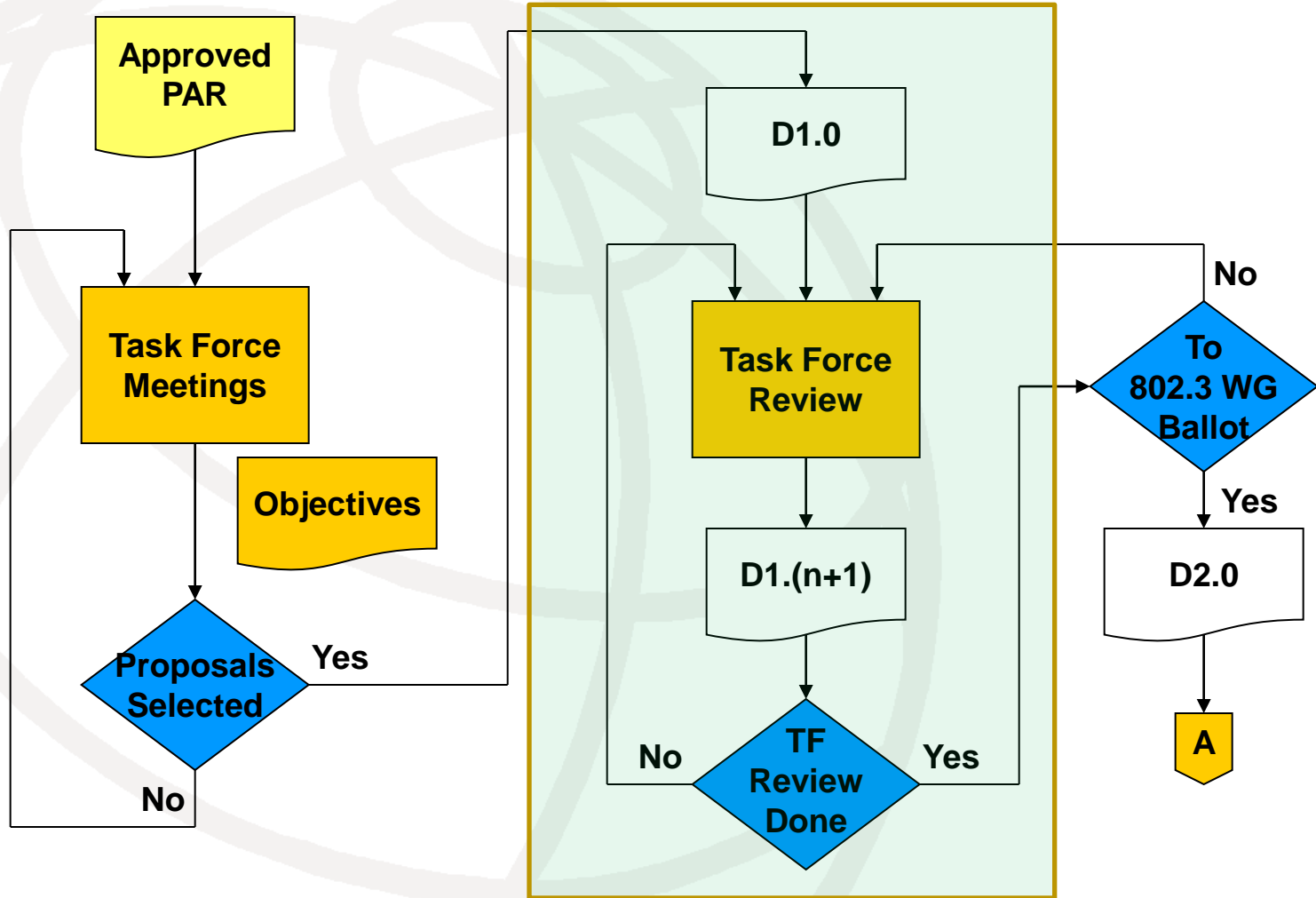
- Do not change the way EPON works (both 1G-EPON and 10G-EPON), keeping the existing PCS and MPCP specifications intact
- Extend the existing EPON architecture rather than modify it in any way; the project is to evolve EPON into higher power budgets only
- Examine the possibility of supporting loss budgets in excess of 33 dB with the use of Power Budget Extenders (PBEx) if they are found to be economically justified

- Primary website
 - ➔ <http://www.ieee802.org/3/bk/>
- Public folder
 - ➔ <http://www.ieee802.org/3/bk/public/index.html>
- Private folder
 - ➔ <http://www.ieee802.org/3/bk/private/>
- IEEE 802.3bk PAR
 - ➔ <http://www.ieee802.org/3/bk/P802.3bk.pdf>
- IEEE 802.3bk 5 Criteria
 - ➔ http://www.ieee802.org/3/bk/ExEPON_5Criteria_approved.pdf
- IEEE 802.3bk Objectives
 - ➔ http://www.ieee802.org/3/bk/ExEPON_Objectives_approved.pdf
- Email reflector
 - ➔ http://www.ieee802.org/3/EXTND_EPON/reflector.html



Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

IEEE P802.3bk Progress (II)



- **D1.0**
 - Publish out of May 2012 meeting, start TF review cycle
 - Completed on schedule
- **D2.0**
 - Publish out of November 2012 meeting, start WG ballot cycle
 - Under way
- **D3.0**
 - Publish out of March 2013 meeting,
 - Start Sponsor ballot cycle
- **Standard done (expected): August 2013**

- D1.0 Task Force review open between June 4th, 2012 and July 9th, 2012 11:59PM AOE
 - Total of 85 comments received, all comments resolved during July plenary meeting
- D1.1 Task Force review open between August 3rd, 2012 and September 5th, 2012 11:59PM AOE
 - Total of 95 comments received, mostly editorials
 - All comments planned to be addressed during September interim meeting (following week)
 - D1.2 Task Force review to have limited scope in preparation for Work Group review in November 2012

- **Clause 30:** Management
- **Clause 45:** Management Data Input/Output (MDIO) Interface
- **Clause 56:** Introduction to Ethernet for subscriber access networks
- **Clause 60:** Physical Medium Dependent (PMD) sublayer and medium, type 1000BASE-PX10, 1000BASE-PX20, 1000BASE-PX30, and 1000BASE-PX40 (long wavelength passive optical networks)
- **Clause 75:** Physical Medium Dependent (PMD) sublayer and medium for passive optical networks, type 10GBASE-PR and 10/1GBASE-PRX
- **Annex 75A, 75B and 75C**
- No changes to PCS or MPCP for 1G-EPON and 10G-EPON

- 2012.09 802 Interim Meeting
 - ITU-T facilities, Geneva, CH
 - September 24th through September 28th, 2012
- 2012.11 802 Plenary Meeting
 - Grand Hyatt San Antonio, San Antonio, TX, USA
 - November 12th through November 15th, 2012
- 2013.01 802 interim Meeting
 - Location is TBD
 - Week of January 21, 2013
- 2013.03 802 Plenary Meeting
 - Caribe Royale, Orlando, FL, USA
 - March 18th through March 21st, 2013
- See: <http://www.ieee802.org/3/interims/index.html> for more details



Thank You!