

# CFI for CFI: 1x50Gb/s and 2x50Gb/s EPON

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# Objective For This Meeting

- To measure the interest in when to start a CFI to address:
  - EPON 50G serial rate for 50Gb/s (1x50G) and 100Gb/s (2x50G) full duplex, symmetric, service rates.
- In this room, we do not need to:
  - Fully explore the problem
  - Debate strengths and weaknesses of solutions
  - Choose any one solution
  - Create a CFI consensus presentation, PAR, or CSD
  - Create a standard or specification
- Anyone in the room may speak and participate in straw polls
- RESPECT... give it, get it

# Agenda

- Overview
  - History of 25Gb/s serial for EPON
  - Motivation for 50Gb/s serial for EPON
  - Impact on P802.3ca work
  - What is different?
  - When to target a CFI presentation?
- Discussion
- Straw poll

# History of 25Gb/s Serial for EPON

- In July 2015 the CFI for Next Generation EPON was presented and accepted by the 802.3 WG. This led to the creation of project P802.3ca (NGEPON) with its first meeting in January 2016.
  - To create a standard for Physical Layer Specifications and Management Parameters for 25 Gb/s, 50 Gb/s, and 100 Gb/s Passive Optical Networks.
  - Technical and economic feasibility was established in the [CSD](#) for 25 Gb/s channels.
- P802.3ca Task Force adopted a 1x25Gb/s, 2x25Gb/s, and 4x25Gb/s architecture for 10km and 20km networks, as well as MPRS, PCS, and PMA, etc.
  - Much diligence has been brought before the Task Force.
  - Draft 1.0 is targeted for May 2018.

# Motivation for 50Gb/s serial for EPON

- In July 2017, the Task Force received a joint contribution from multiple individuals [wangbo\\_3ca\\_2\\_0717.pdf](#) (page 3) stating a new desire for the Chinese market to evolve from 10G platform directly to 50G/100G with enhanced line rate such as 50Gb/s to satisfy service requirements around 2025.
- Individuals affiliated with North American operators continue to express desire for the P802.3ca 1x25Gb/s and 2x25Gb/s standard to be completed as soon as possible for initial testing and deployment in 2019/2020.

# Impact on P802.3ca work

- 50Gb/s serial study was initiated in P802.3ca.
  - Technical and economic feasibility has yet to be established for 50Gb/s serial for EPON.
- In November 2017, P802.3ca adopted a motion to remove “100 Gb/s in downstream and less than or equal to 100 Gb/s in upstream” from its Objectives: [P802.3ca Closing Report](#).
  - This effectively removed the 100G EPON 4x25Gb/s serial configuration.
- Moving 100Gb/s to a new project has NO impact on P802.3ca.
  - A new project would address development of 1x50Gb/s and 2x50Gb/s.
  - Work continues for 1x25Gb/s and 2x25Gb/s.

# What is different?

- 50Gb/s serial technology is distinct from 25Gb/s serial:
  - Higher density modulation and/or serial speed.
  - More challenging power budget for both 10km and 20km ODN.
  - May require more gain from FEC, different line code, etc.
  - 50Gb/s upstream burst CDR/SERDES should be a follow-on to 25Gb/s.
    - Note: 25Gb/s upstream burst receiver products do not exist at this time.
- 50Gb/s serial economic feasibility is different than for 25Gb/s and has not been sufficiently studied.
- Different desired market availability:
  - 25Gb/s serial for 25G/50G EPON -> ~2020
  - 50Gb/s serial for 50G/100G EPON -> ~2025

} ~5 year difference.  
Note: a PAR has an initial 4 year lifetime.

IEEE 802.3 addresses new technical and economic feasibility, market availability, and distinct identity for Ethernet by starting a CFI.

# When is the right time to start a CFI for 50Gb/s serial for 1x50Gb/s (50G) and 2x50Gb/s (100G) for EPON?

- What are the advantages of starting now?
  - Responsive to the July 2017 contribution.
  - Provides maximum time to solve difficult problems in time for the desired market availability.
- What are the advantages of waiting?
  - EPON always uses “hand me down” technology from serial point-to-point.
  - As we wait longer, technologies will become more mature and technical breakthroughs improve technical and economic feasibility.
  - Better alignment with 50Gbps serial TDM PON project that is now being discussed in ITU SG15/Q2.
  - Design and implementation feedback on 25Gb/s from vendors will be available.
- This decision should be discussed by all interested parties.

# DISCUSSION

# Straw Poll 1:

- When should we target a Call For Interest presentation for 50Gb/s serial for 1x50Gb/s (50G) and 2x50Gb/s (100G) EPON?

Vote for one choice:

- 1) As soon as possible:
- 2) As late as possible, but meeting 2025 availability target:
- 3) Somewhere in between:
- 4) No opinion:

Room Count:

# THANK YOU!