# Study Group kickoff and Foundational Objectives

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Acting Study Group Chair

Ad hoc meeting 12/13/18

# Topics

- Study Group Work
- Potential Objectives

# Study Group Scope

Our scope is fairly clearly defined and well supported

*Motion from November 802.3 WG Closing plenary:*

> Move that the IEEE 802.3 Working Group request the formation of a Study Group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for 100 Gb/s per lane optical PHYs for 2 km and 10 km for 100 GbE and 400 GbE

*M: Mark Nowell   S: David Lewis     Y/N/A:    85/0/1*

This should simplify the discussion around objectives and other Study Group documentation

# Study Group Work

- Goal of a Study Group is to study the problem and develop the following:
  - Objectives
  - Responses to The Criteria for Standard Development (CSD) – aka 5 Criteria
  - PAR
- Solving the problem, developing solutions, writing specifications are all Task Force activities

Ad hoc charter:

- The charter of 100 Gb/s per lane optical PHYs Study Group Ad Hoc Area is to discuss the different areas of work that will fall under the work of the study group and to prepare content and contributions towards the study group's goals of developing the required documentation of objectives, PAR and CSD

# Objectives

Two categories of objectives expected for this project:

1. Foundational Objectives – necessary objectives to guide work. Usually non-controversial

2. PHY Objectives – Consensus needed. But for this project, I believe there is strong consensus forming.

# 100 Gb/s Ethernet Draft Objectives (Foundational)

- Support a MAC data rate of 100 Gb/s
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support a BER of better than or equal to $10^{-12}$ at the MAC/PLS service interface (or the frame loss ratio equivalent)

# 400 Gb/s Ethernet Draft Objectives (Foundational)

- Support a MAC data rate of 400 Gb/s
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support a BER of better than or equal to $10^{-13}$ at the MAC/PLS service interface (or the frame loss ratio equivalent)

# Proposed form of PHY Objectives

- Define " "-lane x00 Gb/s PHYs for operation over
    - SMF with lengths up to at least x
    - SMF with lengths up to at least x

# Next Steps

- Other Objectives?  What's missing?
- CSD justification for objectives:
    - Broad Market Potential
    - Technical Feasibility
    - Economic Feasibility
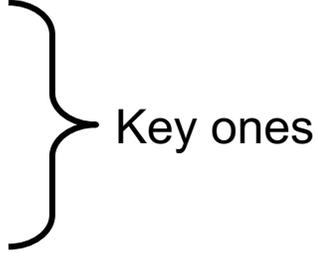
    Key ones

- Two parts to a successful CSD approval:
    - Need agreed text for each response
    - Need contributions supporting the statements made

# BACKUP

# Managed Objects

**Describe the plan for developing a definition of managed objects.  The plan shall specify one of the following:**

    a)  **The definitions will be part of this project.**

    b)  **The definitions will be part of a different project and provide the plan for that project or anticipated future project.**

    c)  **The definitions will not be developed and explain why such definitions are not needed.**

# Coexistence

**A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.**

    a) **Will the WG create a CA document as part of the WG balloting process as described in Clause 13?**

    b) **If not, explain why the CA document is not applicable**

- A CA document is not applicable because the proposed project is not a wireless project.

# Broad Market Potential

**Each proposed IEEE 802 LMSC standard shall have broad market potential.  At a minimum, address the following areas:**

    a)  **Broad sets of applicability.**

    b)  **Multiple vendors and numerous users.**

# Compatibility

**Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor.**

    a) **Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?**

    b) **If the answer to a) is "no", supply the response from the IEEE 802.1 WG.**

    c) **Compatibility with IEEE Std 802.3**

    d) **Conformance with the IEEE Std 802.3 MAC**

    e) **Managed object definitions compatible with SNMP**

# Distinct Identity

**Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.**

**Substantially different from other IEEE 802.3 specifications / solutions.**

# Technical Feasibility

**Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:**

    a) **Demonstrated system feasibility.**

    b) **Proven similar technology via testing, modeling, simulation, etc.**

    c) **Confidence in reliability.**

# Economic Feasibility

**Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:**

   a) **Balanced costs (infrastructure versus attached stations).**
   b) **Known cost factors.**
   c) **Consideration of installation costs.**
   d) **Consideration of operational costs (e.g., energy consumption).**
   e) **Other areas, as appropriate.**