Strawman Objectives – Long Term longreach SPE

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Long-reach SPE

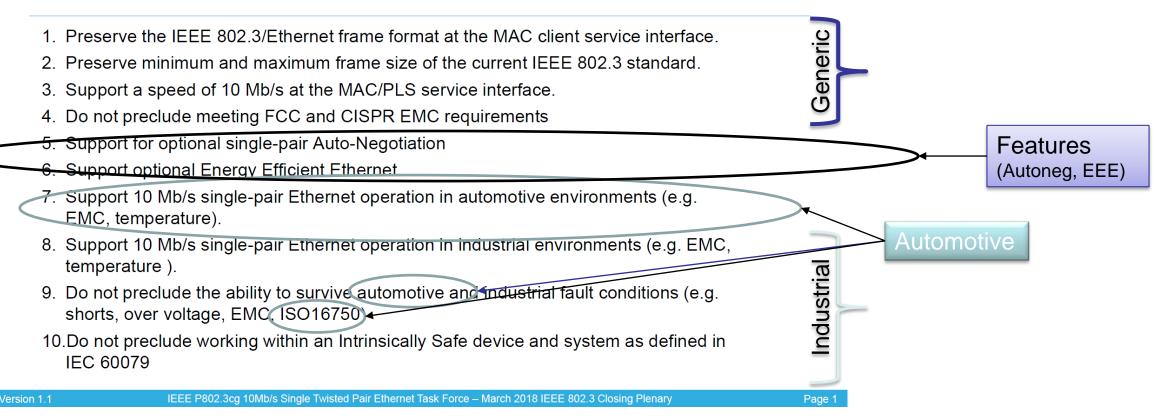
- The project has gotten into discussion of vehicular and mobile-machine applications
 - These were the basis for 100BASE-T1 and 1000BASE-T1 "link segment B"
- A standards project needs focus
- Drafting minimum objectives brings that focus
 - Additional features, rates, PHYs can then be considered based on value-add and work required

Suggestions

- Start with 802.3cg objectives, relevant to long-reach PHY
- Focus on 100 Mb/s rate
 - Focus on Industrial and Building Environments
 - Determine reach and link segment requirements necessary for Broad Market Potential, Distinct Identity, and effective deployment
 - Determine any other special requirements
- THEN consider what additions are within reach and add sufficient value to expand the project

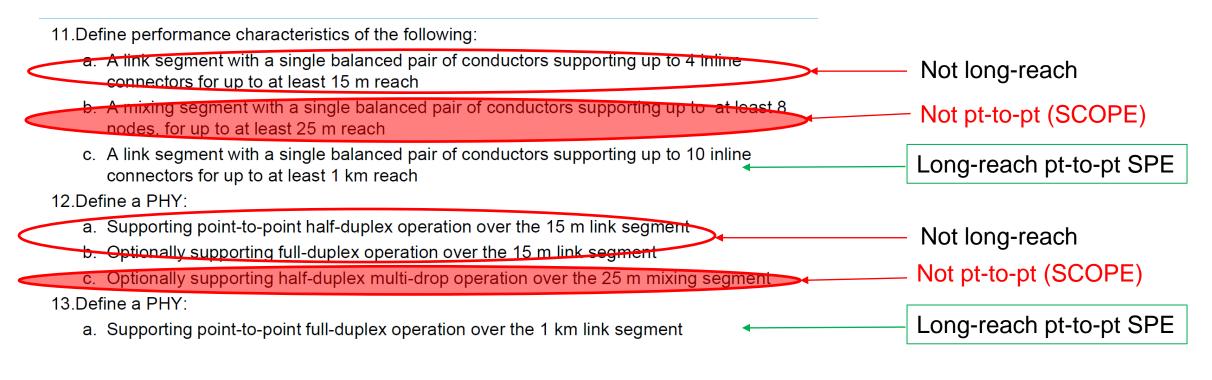
802.3cg objectives

Objectives (1 of 3) – approved by 802.3 on 3/8/18



More .3cg Objectives (PHYs and Reach)

Objectives (2 of 3) - approved by 802.3 on 3/8/18



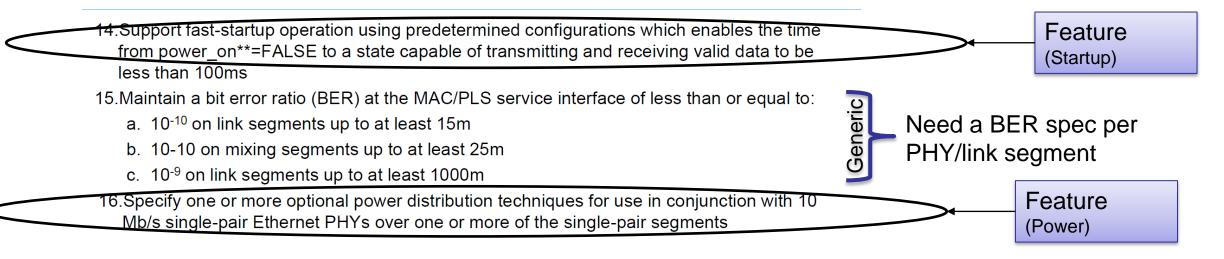
Version 1.1

IEEE P802.3cg 10Mb/s Single Twisted Pair Ethernet Task Force – March 2018 IEEE 802.3 Closing Plenary

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Startup, BER, and Powering Objectives

Objectives (3 of 3) - approved by 802.3 on 3/8/18



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Suggested Starting Point Objectives

- 1. Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface.
- 2. Preserve minimum and maximum frame size of the current IEEE 802.3 standard.
- 3. Support a speed of 100 Mb/s at the MAC/PLS service interface.
- 4. Do not preclude meeting FCC and CISPR EMC requirements
- 5. Support for optional single-pair Auto-Negotiation
- Support 100 Mb/s single-pair Ethernet operation in industrial environments (e.g., EMC, temperature).**
- 7. Do not preclude the ability to survive industrial fault conditions (e.g., shorts, overvoltage, EMC)
- 8. Do not preclude working within an Intrinsically Safe device and system as defined in IEC 60079
- 9. Define performance characteristics of a link segment with a single balanced pair of conductors supporting up to 10 inline connectors for up to at least (TBD: 1 km/500m/(TBD, > 300m) reach, and a PHY supporting point-to-point full duplex operation over the link segment. **
- 10. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to TBD**

** NOTE: THESE WILL NEED TECHNICAL FEASIBILITY PRESENTATIONS

POTENTIAL ADDITIONAL OBJECTIVES

- Startup:
 - Support fast-startup operation using predetermined configurations which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms
- Power:
 - Specify one or more optional power distribution techniques for use in conjunction with 100 Mb/s single-pair Ethernet PHYs over one or more of the single-pair segments
- EEE:
 - Support optional Energy Efficient Ethernet
- ADDITIONAL RATES / REACHES:
 - Add to other objectives, with similar text
 - Note these need MORE tech feasibility work
 - These may substantially add to the difficulty of the project, except where the PHY (and sometimes the link segment) specifications simply scale with the rate

Discussion?