

Auto-negotiation use cases

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Purpose

- Identify need to clarify the auto-negotiation objective

References

- Objectives
 - http://www.ieee802.org/3/cg/objectives_10SP_E_111016.pdf
 - 5. Support for optional single-pair Auto-Negotiation
- Submissions
 - http://www.ieee802.org/3/cg/public/Jan2017/McClellan_3cg_01a_0117%20xBASE-T1%20Autoneg.pdf
 - xBASE-T1 Auto-Negotiation

From concept to baseline (for your reading pleasure)

- http://www.ieee802.org/3/1TPCESG/public/Lo_02_0514.pdf
- http://www.ieee802.org/3/bp/public/mar14/Lo_3bp_04_0314.pdf
- http://www.ieee802.org/3/bw/public/Lo_3bw_01a_0914.pdf
- http://www.ieee802.org/3/bp/public/sep14/tu_3bp_01a_0914.pdf
- http://www.ieee802.org/3/bp/public/nov14/McClellan_3bp_01a_1114.pdf
- http://www.ieee802.org/3/bp/public/nov14/cordaro_3bp_01_1114.pdf
- [http://www.ieee802.org/3/bp/public/nov14/mcclellan_3bp_03_1114_%20Auton eg_baseline_text_proposal_v0p4.pdf](http://www.ieee802.org/3/bp/public/nov14/mcclellan_3bp_03_1114_%20Auton%20eg_baseline_text_proposal_v0p4.pdf)
- http://www.ieee802.org/3/bp/public/nov14/Unconfirmed_minutes_3bp_1114.pdf
- http://www.ieee802.org/3/bp/public/feb15/cordaro_3bp_01_0215.pdf

Use cases

- Industrial PHY
 - 10M, future migration to 100M+
 - Long reach
- Automotive PHY
 - Automotive use
 - TBD
 - Industrial use
 - 10M, future migration to 100M and 1G
 - Short reach

Forward or backward compatibility or both?

Observations

- There is re-use value in starting with Clause 98
- Echo related timing could be easily modified (extended) depending on use case selection
- Reliable reception at 1000 m needs feasibility evaluation
- Dependencies
 - Power scheme is not chosen – an upper frequency bound needs to be set
 - Auto-negotiation signal should have minimal attenuation by the power circuits
 - Modulation scheme is not chosen – a pass band needs to be set
 - Auto-negotiation signal should pass into the PHY

Observations

- DME 16 2/3 MHz symbol rate – 33 1/3 MHz clock
 - Will be severely attenuated by 1000 m link segment (>25dB)
 - http://www.ieee802.org/3/cg/public/Jan2017/dimini_co_01a_0117.pdf
 - May increase relative cost of 15 m link segment due to higher clock rate
 - Reduces filtering of interference

Conclusions

- The original objective is not specific
 - Use cases must be agreed
- Re-use of modified Clause 98 seems feasible and desirable, but can't move forward until use cases and dependencies are resolved