A Straw-man Proposal Approach to Prime the 802.3da Pump

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Needs and Observation

- Need: Mixing Segment, MDI loading, and PHY specifications
- Observation:
  - We have been working from modeling cabling with assumptions about the MDI loading (incl. power coupling) and the PHY receiver capabilities
  - Cabling presentations present losses based on these assumptions
    - diminico_SPMD_02_0321.pdf , diminico_SPMD_01a_0221.pdf
  - PHY discussions make assumptions on cabling
    - Koczwara_Griffiths_Brandt_MultidropNodeDistributionChallenges_20201202_v1.1.pdf
  - MDI loading is discussed in power
    - paul_01_da_120220.pdf , Paul_01_da_121620.pdf , paul_01_da_012721.pdf
- Need to get convergence of all these three

Concerns needing Study

- General concern over variability of mixing segment
  - Variable Topologies
  - Variable PHY receiver targets
  - Variable Power loading
- General concern over ‘minimum’ objective and desire for more performance

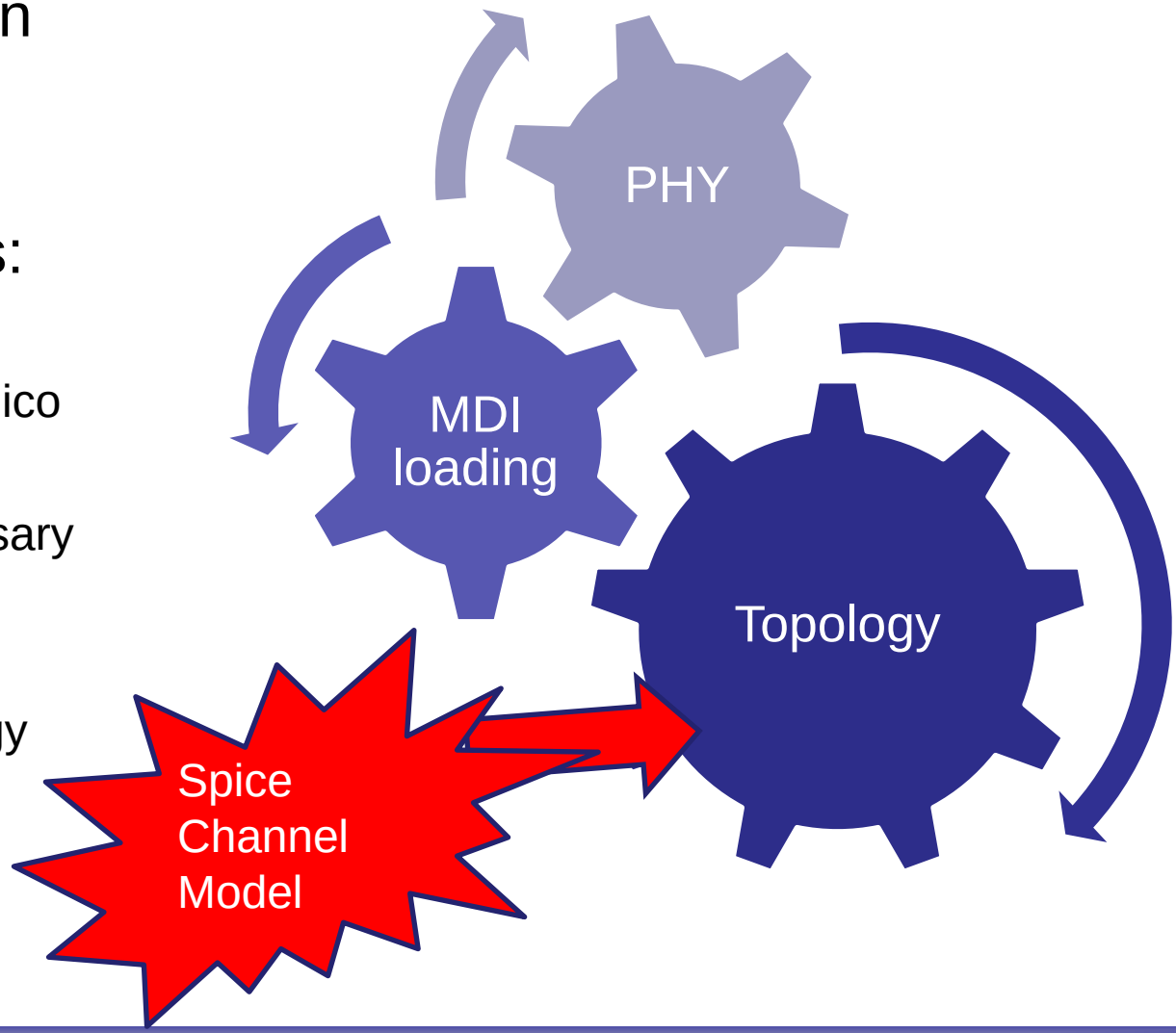
OBSERVATION: Talking SPECIFICs Crystallizes these Concerns and Gives something to move forward with

Proposal to Accelerate Progress

- One way to move forward is to begin with a straw-man proposal for a central component
  - Often a PHY or a link segment specification, but, most likely, for 802.3da, a model of the mixing segment
    - This can be used to explore both the ‘minimum’ and the ‘extended’ range as well as topology and power coupling implications
- What exactly do I mean a “strawman proposal” –
  - Wikipedia – “The Internet’s Source of Approximate Truth” (J. D’Ambrosia)
    - “A **straw-man (or straw-dog) proposal** is a brainstormed simple draft proposal intended to generate discussion of its disadvantages and to provoke the generation of new and better proposals.” (https://en.wikipedia.org/wiki/Straw_man_proposal)

What might a Straw-Man Proposal Be?

- LTSpice model based on analysis in Diminico
  - Get consensus on model
- Begin Iterating Cases for Baselines:
  - Minimum case:
    - Mixing segment physical rules in Diminico
    - Clause 147 PHY parameters assumed
    - Propose what modifications are necessary and evaluate complexity
  - Desired case:
    - First get consensus on a target topology and length
      - Use consensus model for channel
    - PHY proposals



What does this mean

1. Consider the models in diminico as an agreed starting point
   - Work to get consensus on the LTSpice framework
2. Begin bringing in MDI loading and Desired topologies
   - Formulate ‘minimum’ and ‘desired’ channel models
3. Bring PHY analysis (beyond eye diagrams)
   - Tune:
     1. Minimum PHY to meet channel
     2. Expand channel to meet tuned minimum PHY
     3. PHY to meet desired channel
4. Repeat 2 & 3 until done, compare & baseline

- Gets us started toward a specification

Proposal

- Consider adopting the LTSpice Model based on Diminco, and the minimum channel topologies in the presentation (but not as a motion for the draft)
- Then focus on:
  - Extending the Mixing Segment
  - MDI loading considerations
  - What PHY modifications or improvements we may wish to adopt
  - Close the gap...