Channel Performance

IEEE P802.3bq NGBASE-T Task Force

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What We Don't Want to Specify

PHY

Operating on…

Cabling

Imbalance

What We Should Try to Specify

PHY

Operating on…

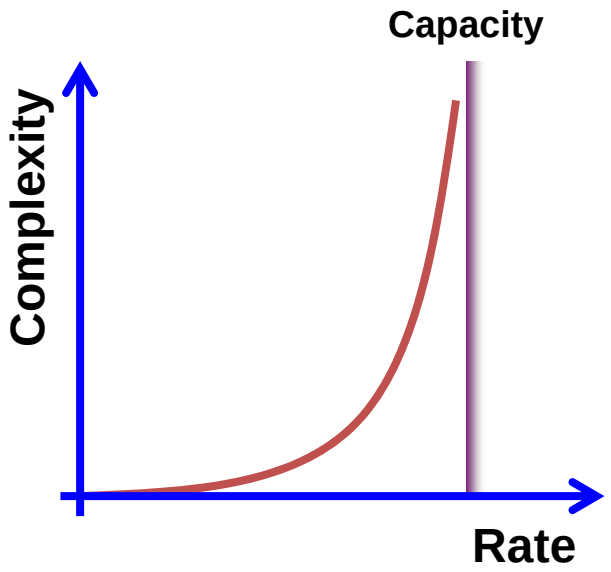
Balance

Cabling

Impairment vs. Power

- Per Shannon's theorem, the capacity of a channel is affected by the noise of the channel
- The closer the signal bandwidth approaches the channel's capacity, the greater the complexity to extract error-free data
- Complexity = power

- Recent presentations
  - Zimmerman_01_0313
  - Nordin_01a_0313



Connector

- Are connectors “red lights” or “green lights”?
- Multiple improved connector specifications
  - Enhanced RJ45 (to become IEC 60603-7-81)
  - Enhanced GG45 (to become IEC 60603-7-82?)
  - Enhanced TERA (to become IEC 61076-3-104, Ed. 3)
- Task Force action items
  - Do not need to select the connector in the channel
    - Cabling standards bodies do that
  - Select a performance requirement for the channel
  - Decide upon the MDI connector

Connector Considerations

- Will the performance requirements impact the connector?
- Will that impact backwards compatibility?
  - Ability to talk to existing infrastructure
  - Moving away from UTP for 40G
- What is the impact to broad market potential?
  - Does the change in reach diminish that concern?

- Lots of potential questions to answer

Recommendation

- Focus on creating a balance between the PHY and the channel
  - Power, cost, etc.
  - A requirement of the 5 Criteria
- Form an ad hoc to investigate PHY vs. channel trade-offs
  - Specific objective to NOT select a PHY
  - Find the balance between channel performance and PHY complexity

Thank You!

- Questions?