Backplane Ethernet Objectives, Goals, Non-Goals, and Considerations

802.3 BPE Study Group
Interim Meeting
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CFI Suggested Focus and Scope
(paraphrased and reformatted)

- **Technical Focus**
  - System environment
    - Electrical, EMI and power
    - Channel model to provide easy migration path
  - Speed
    - 1000BASE-X and XAUI have no shared negotiation capability
      - Clause 37 is for optics
      - Clause 28 is for copper, but not spec'ed for backplanes
  - Challenges are technically feasible
    - Create a specification that binds all the concepts together
    - Reference existing technologies or standards

- **Possible Future Work Possible Future Work**
  - Speed
    - Increasing data rate per lane
    - Lane aggregation
  - Layer 2 enhancements
    - Priority based flow control for traffic types (IPC, SAN, LAN, Comm)
    - Fail-over or automatic protection switching
  - Other?
    - Good topic for a Study Group to consider

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Early Tasks

- **What Problem are we trying to solve?**

- **Objectives**

- **Goals and non-goals**

- **Considerations (and trade-off with compatibility)**

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Problem to solve

- **The lack of standardized use of SerDes as THE "MDI" on Ethernet backplanes.**

    - Rate negotiations

    - Lane negotiations

    - Fault-tolerance, resiliency (e.g. 2N, N+1, N-1)

- **"Roadmap" for SerDes**

    - GE: 1.25 Gb/s (4B/5B)

    - 2.5GE: 3.125 Gb/s (8B/10B),

      and now consider

    - 5GE: 6.25 Gb/s (8B/10B)

    - 10GE: 1x.xx Gb/s (left intentionally blank)

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Objectives

- **Compatibility to existing SerDes that 802.3 use**
  - Auto-detection of 1.25G and 3.125G
  - Compatible with lane 0 constraint in 3.125G/XAUI (if lane redundancy is considered).

- **Fastest to standardization**
  - Blade Server mass deployment has started.

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Goals & Non-Goals

- **Goals**

  - Auto-negotiation on SerDes

  - Management on SerDes

  - Resiliency on SerDes, e.g. APS Switching

  - Minimize changes to the PCS

- **Non-Goals**

  - Changes to the MAC

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Considerations

- **Any MAC changes effect installed base, so avoid it.**
  - Ethernet backward compatibility
  - Leverage main-stream Ethernet volume

- **Following require mandatory MAC Change, therefore DO NOT Consider – in this study group.**
  - Lane aggregation in combination with fail-over
  - Priority based flow control for traffic types (IPC, SAN, LAN, Comm)

- **Pent-up demand for MAC changes should be forwarded to 802.3.**

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