SMF Ad Hoc way forward

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SMF presentations - Atlanta

- Step reduction in cost needed
  - nowell_01_1111
  - cole_01a_1111

- Midwave (950-1200nm) VCSEL over special SMF
  - jewell_01_1111 (> 1km)

- Parallel fiber SMF
  - petrilla_01_1111 (2km)
  - anderson_01_1111 among others (550m)
  - palkert_01_1111 (1 to 2 km)

SMF presentations – Newport Beach

- Case for SMF objective not yet made
  - cole_01a_0112
- Relative cost
  - kipp_01_0112 (1km)
- Parallel fiber SMF
  - petrilla_02a_0112 (1km)
  - anderson_01_0112 (2km)
  - anderson_02_0112 (1km)
- PAM-8 or PAM-16
  - bhoja_01_0112 Feasibility
  - szczepanek_01_0112 TIAs and CDRs
  - nicholl_01_0112 Relative cost
- 4x10G DML and 4x25Gb/s linear equalizers
  - way_01_0112 (2km)

No consensus as yet for SMF objective

- At Newport Beach there wasn't consensus to add an SMF objective
- Why not? Uncertainty about reach?
- No, 1km seems a reasonable straw man proposal
  - Cost studies suggest that parallel fiber economic over this distance (kipp_01_0112, anderson_01_0112)
  - No Newport Beach contribution proposed less than this
  - 500m to 1km fiber loss is only 0.25 dB at 1300nm
- In order to move forward with an objective at least one technical solution must be able to satisfy all 5 criteria at the same time
  - Broad market potential / Technical feasibility / Economic feasibility are main focus
- Parallel fiber and PAM-8/16 received most attention in Newport Beach
  - What is missing from these proposals?

Issues to be resolved

- Parallel fiber
  - Broad market potential – assuming this solution gives a significant reduction in cost, how much of a barrier to deployment is parallel SMF?
  - Economic feasibility – is the cost relative to a mature 100GBASE-LR4 low enough to justify splitting this market in to two parts?
  - Technical feasibility – a parallel fiber solution over 1km is clearly technically feasible at some cost. When will multiple suppliers be able deliver the technology to achieve a parallel solution at a significantly lower cost than a mature 100GBASE-LR4?

- PAM-8/16
  - Technical feasibility –
    - optical measurements of 34 GBd PAM-8
    - optical measurements of 25.8 GBd PAM-16
    - penalties due to dispersion, reflections etc.
  - Economic feasibility – is the cost relative to a mature 100GBASE-LR4 low enough to justify splitting this market in to two parts?

Way forward

- Assume a straw man 1km SMF objective

- Look for at least one technical solution that is able to satisfy all 5 criteria at the same time
- Concentrate on the weakest 5C responses for each solution

- Having reached consensus on at least one solution, revisit proposed objective to see if it is still appropriate, has BMP etc.

- Bring in presentations to Study Group meeting aimed at adopting objective and adding suitable text to 5C responses

Thanks!