



40GbE SMF recommendations

IEEE 802.3 HSSG

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Topics

- 40GbE SMF objective
- The options
- The arguments
- Considerations
- Recommendations

Need for 40GbE SMF

- barbieri_01_0308
 - Summary presentation of SMF ad-hoc group
 - Showed supporting material for all 5 criteria (Broad Market Potential, Distinct identity, Technical feasibility, Economic Feasibility, Compatibility)
 - Supporting data came from both enterprise and carrier applications
- Motion to adopt 40GbE SMF 10km objective passed
Y:124 N:0 A:14
- We have strong belief in the need for a 40GbE SMF 10km objective

The options

- Last few meeting cycles has focused on two dominant technical proposals for meeting this objective

CWDM or Serial

- Numerous presentations over last few meeting cycles refining proposals
- Motion in Denver meeting failed to achieve consensus on a baseline proposal based on CWDM Y:81 N:38 A:31 (68% < 75% required)

Warning: attempt has been made to reduce bias

The arguments surrounding CWDM

CWDM	Argument	Counter Argument
Cost	Cost is lower initially. Leverages 10G technology.	Limited cost reductions once developed
Size/Power	Feasible to implement	Further size reductions challenging
Technical Risk	Very low for CWDM. Serial requires risky technical developments to achieve cost projections	Debate on severity of risk on serial technology
Link budget	Technically feasible	none
Operational issues	CWDM complicates operational issues due to requiring monitoring >1 channel in link	Only aggregate link health is monitored. Implementation is transparent.
Market need	Low cost is required quickly to enable market. Higher costs will delay or skip adoption.	Market need is longer term

Warning: attempt has been made to reduce bias

The arguments surrounding Serial

Serial	Argument	Counter Argument
Cost	Cost can be lowered by adoption of more advanced technologies. Could ultimately be the lower cost solution.	Risks in projections. Cost can be lowered by similar investment in CWDM technologies
Size/Power	Feasible to implement	Further size reductions challenging
Link budget	Technically feasible	none
Operational advantages	Consistent with traditional operational procedures and tools	none
Leverage for future technologies	Development will facilitate low cost adoption of 40G technology across other markets (eg Metro DWDM)	Other markets may not use 40G serial – leverage more advanced techniques

Other considerations

- Per barbieri_01_0908 the dominant application in near term is the enterprise market
 - Cost sensitivities in this market have significant impact on the authors' determination of the preferred proposal
 - Market size projections are strongly dependent on cost projections
- IEEE 802.3ae was a similar forum where LAN and WAN interworking became an issue. Solution at that time was dual objectives.
 - History confirms industry aligns to dominant application

Baseline proposal recommendation

Priority for authors is to enable the dominant 40GbE SMF market. Therefore weighting is given to:

- Lower near term cost
- Lower technical risk

The recommendation is to support a baseline proposal that incorporates CWDM technology for 40GbE SMF objective

If that fails....

- However, if TF is unable to reach consensus on this one issue....
- Concern that this single issue has significant impact on schedule for rest of standard.
- Recommend a motion to remove 40GbE SMF objective from 802.3ba