40GbE SMF recommendations

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Prepared by:

Mark Nowell, Cisco
Jeff Maki, Juniper
Gary Nicholl, Cisco
Andy Moorwood, Infinera
John Jaeger, Infinera
Pete Anslow, Nortel

Jesse Simsarian, Alcatel-Lucent
Steve Trowbridge, Alcatel-Lucent
Joel Goergen, Force10 Networks
Sashi Patel, Foundry Networks
Alessandro Barbieri, Cisco
Supporters

Jay Moran, AOL
Donn Lee, Facebook
Shane Amante, Level3
Ted Seely, Sprint
Martin Carroll, Verizon
Mike Bennet, LBNL
Brad Turner, Juniper Networks
David Ofelt, Juniper Networks
Stephen Strong, Juniper Networks
Bill Trubey, Time-Warner Cable
Henk Steenman, AMS-IX
Larry Green, IXIA
Hirotaka Oomori, Sumitomo Electric

Jaya Bandyopadhyay, Juniper Networks
Dan Dove - ProCurve Networking by HP
Ryan Latchman, Gennum
Chris Cole, Finisar
Eddie Tsumura, ExceLight Communications
Shimon Muller, Sun
Howard Frazier, Broadcom
Jonathan King, Finisar
Arne Alping, Ericsson
Kengo Matsumoto, Sumitomo Electric
Jason Weil, Cox Communications
Shashi Patel, Foundry Networks

IEEE 802.3ba
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)
## The arguments surrounding CWDM

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

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