Bidirectional Wavelength plan review

Frank Effenberger

Some proposals so far

PMD type	10km	20km	40km
10G	1330 / 1270 (13nm width)		1330 / 1270 (13nm width)
25G	1330 / 1270 (13 nm width)		1302 / 1270 (~13nm width)
50G	1330 / 1270 (13nm width)		1308 / 1294 (4nm width)

- The higher speeds will require EML for the longer wavelength
- DML's at 25G can work to 1310nm
- Once we go to an EML, it can work all the way to 1360nm
- 20km has not been actively considered
- Assuming 50G uses PAM4, dispersion penalty roughly similar to 25G NRZ

Longer distance 25G DML

- There are two 802.3 links for 25G beyond 10 km
  - 25GBASE-ER: 1295 nm – 1310 nm (40km)
  - 25GBASE-PQX-U: 1290 nm – 1310 nm (20km)
- By staying below 1310 nm, these enable the use of DMLs
  - These are cheaper than the EML
  - They also have higher output power
- Historically, PON has been the vast majority of optical access deployments, and enjoy large volumes
- The price we pay is that the diplexer guard-band is only 10 nm
  - Simple 45° filter technology unavailable
  - This is similar to CWDM filter difficulty

Straw poll proposals

- #1: For 10G, all distances, use 1330 nm down, 1270 nm up
  - Straw poll: Agree, disagree, propose new values...
- #2: For each distance, use the same wavelengths for 25G (NRZ) and 50G (PAM4),
  - Straw poll: Agree, disagree, no opinion
- #3: For 25G 10 km, use 1330 nm down, 1270 nm up
  - Straw poll: Agree, disagree, propose new values...
- #4: For 25G 20 and 40 km, use 1300 nm down, 1270 nm up
  - Straw poll: Agree, disagree, propose new values...