Potential SMF Objectives for 800GE

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SMF Use Cases: Reach

- DC operators have focused on three key reach/loss objectives in recent years:
- **500 m** (example: 400GBASE-DR4)
  - Parallel Fiber + breakout (ie, 4x100GBASE-DR)
  - 3dB loss (with high loss variants, including 4x100GBASE-FR1/400G-DR4+)
- **2 km** (example: 400GBASE-FR4)
  - Duplex fiber
  - 4dB loss (with expanded reach variants, up to 3km with restricted temperature)
- **Many km high loss** (example: 400GBASE-LR4-6)
  - Duplex Fiber
  - 6dB loss

SMF Use Cases: Cross-Compatibility

- 400G Optics are required (by customers) to be multi-rate compatible for at least two PMD generations:
  - Example: 400GBASE-FR4 ↔ 200GBASE-FR4 ↔ 100G-CWDM4
  - Example: 400GBASE-DR4 ↔ *200GBASE-DR4* ↔ 100G-PSM4
  - Requirement most prevalent in 500m and 2km optics

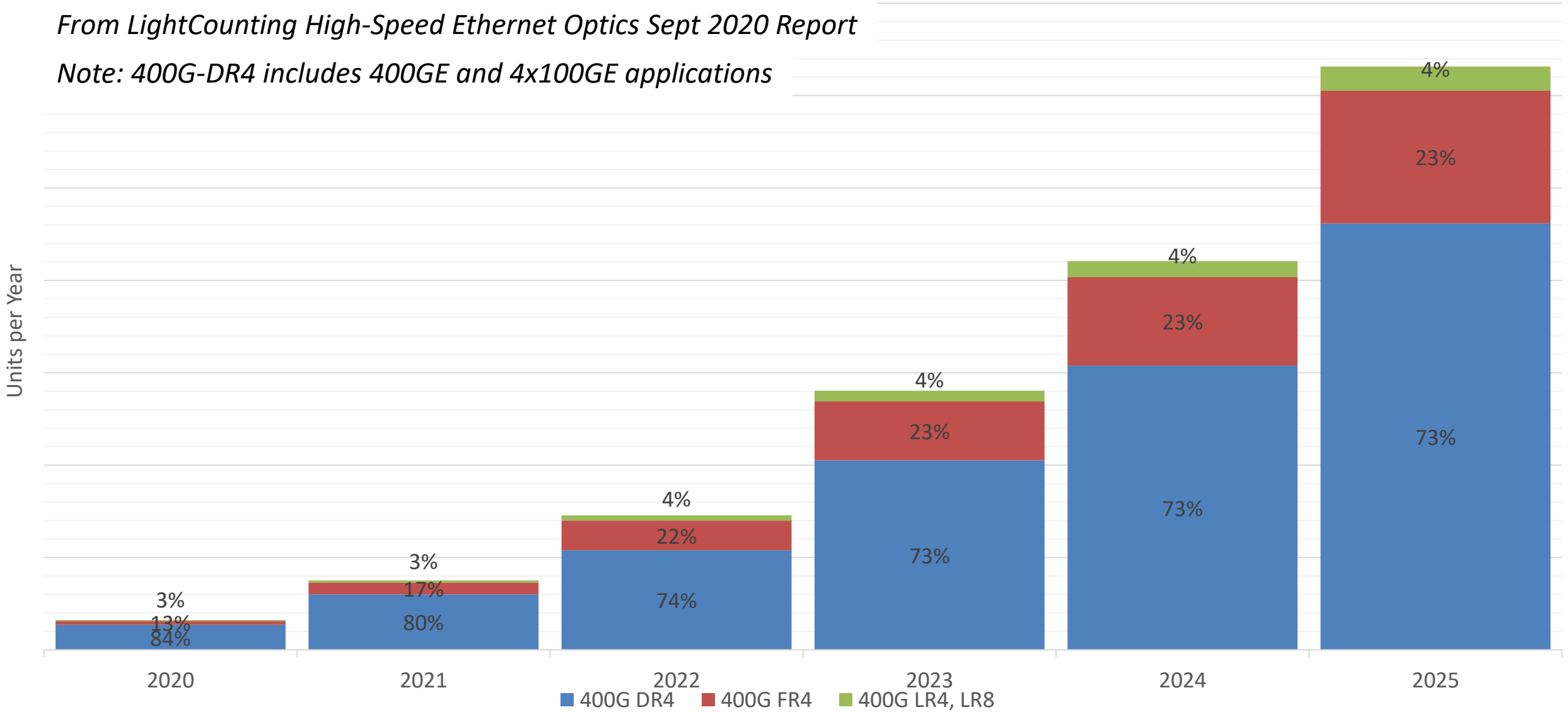
- Breakout support also required (by customers) to support breakout applications:
  - Example: 400GBASE-DR4 ↔ 4x100GBASE-DR
  - Example: 400G-DR4+ ↔ 4x100GBASE-FR1
  - Requirement (generally) limited to parallel optics

- Multi-reach interop required (by customers) in some cases
  - Example: 100GBASE-DR ↔ 100GBASE-FR1

400G SMF Transceiver Projections

From LightCounting High-Speed Ethernet Optics Sept 2020 Report

Note: 400G-DR4 includes 400GE and 4x100GE applications



Potential SMF Objectives for 800GE

- 500m over four fibers with 3dB loss budget (per direction)
  - Example: 800GBASE-DR4
- 2km over one fiber with 4dB loss budget (per direction)
  - Example: 800GBASE-FR4
- *TBD* km over one fiber with 6dB loss budget (per direction)
  - Example: 800GBASE-LR4-x
- *Additional Consideration:* 2km over four fibers with 4dB loss budget (per direction)
  - Example: 800GBASE-DR4+

Questions?

Potential Motions

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1. Define a physical layer specification that supports 800 Gb/s operation over 4 pairs of SMF with lengths up to at least 500 m.
2. Define a physical layer specification that supports 800 Gb/s operation over 1 pair of SMF with lengths up to at least 2 km.
3. Define a physical layer specification that supports 800 Gb/s operation over 1 pair of SMF with lengths up to at least *TBD* km *and loss budget of at least 6 dB*.
4. Define a physical layer specification that supports 800 Gb/s operation over 4 pairs of SMF with lengths up to at least 2 km.