OSA Executive Forum – New Drivers for R&D Investment

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Market Paradigm Shift and Ecosystem Change

Cloud DCs vs Telcos Capital Investment

Source: LightCounting

Supply Chain Ecosystem – Open channels

Carriers - DCs
Enterprises/Clouds
Data Center Operators

System Integrators
IBM, HP, Rackspace, DC builders

System Equipment Manufacturers

Optical Transceiver Vendors

Directly address the needs of end customers and adapt to changing product requirements.
Product Requirement Shift

Product strategy

**Telecom grade**
- 12-15 years product life
- Industrial temperature
- Mission critical
- Cannot fail
- <100 dppm

**Enterprise grade**
- 7-10 years product life
- Commercial temperature
- Telcordia Reliability
- <1000 dppm

**Data Center**
- 3-5 years product life
- Data center temperature
- Operational Reliability
- <10K dppm

Product direction

**Higher Data Rate**
- Higher Order Modulation
- Faster Lasers / Receivers

**More Signal Lanes**
- Photonics Integration
- Innovative Packaging

**Lower Power Consumption**
- Efficient ICs
- Innovative Packaging

**High Density**
- Photonics Integration
- Innovative Packaging

Reliability achieved through multipath network architecture
R&D Directions

- Market has bifurcated into a handful of hyperscale buyers vs. all the rest

- Cost is king. Hyperscale buyers are concerned primarily with cost with minimum specs, less with conforming to IEEE standards. (In 2015, half of the processors Intel sells to cloud buyers will be custom.)

- Adapt to shorter product development cycles as data center traffic grows and as telecom companies shift to an internet protocol infrastructure.

- Develop new products that fit into preexisting data center infrastructure while delivering higher performance and low power consumption.

- Establish a platform approach to design a portfolio of products to meet different distance and fiber layout configurations.

- Collaborate directly with cloud data center operators that are increasingly driving product requirements tailored to their needs.