Leveraging the 25G ecosystem for low cost optical components

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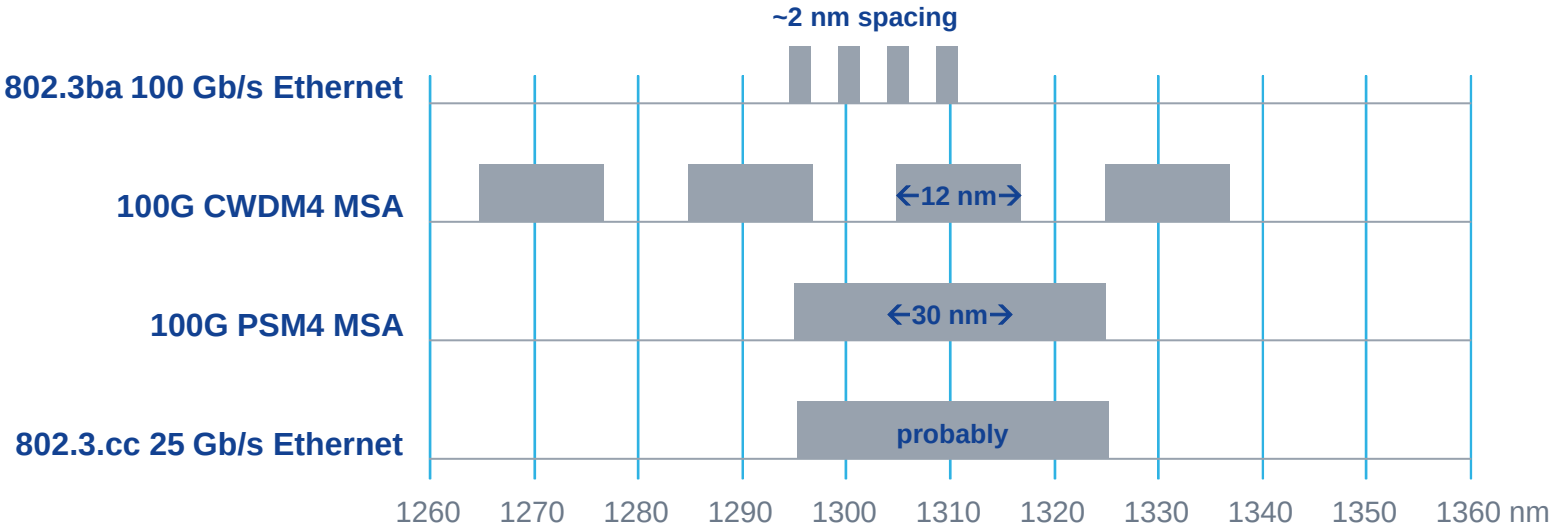
Survey of 25 Gb/s over SMF standards

Standard	25G lanes*	Muxing	Signaling rate (Gb/s)
802.3ba-2010 100 Gb/s Ethernet	4	WDM, 800 GHz CS	25.78125
100G CWDM4 MSA	4	CWDM	25.78125
100G PSM4 MSA	4	SDM (4 fibers)	25.78125
P802.3.cc 25 Gb/s Ethernet	1	N/A	25.78125 (probably)

*these are all 1 fiber for each direction

25G transmit wavelengths

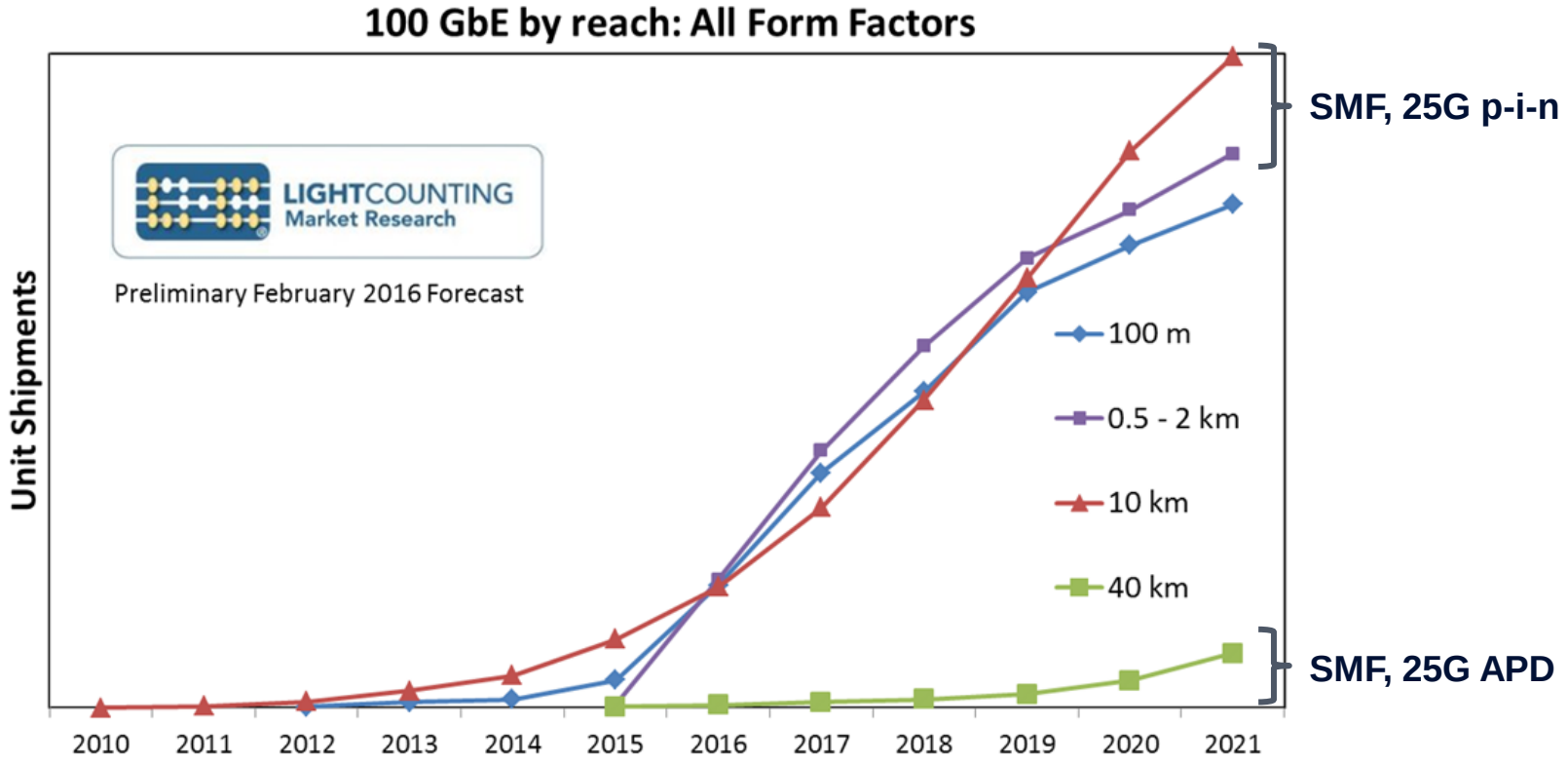


25G components

standard	distance	source	detector
802.3ba 100BASE-ER4 (-ER4f)	40 km	cooled DML/EML	SOA + p-i-n (APD)
802.3.cc 25 Gb/s Ethernet	40 km	uncooled DML/EML	APD
802.3ba 100BASE-LR4	10 km	cooled DML/EML	p-i-n
802.3.cc 25 Gb/s Ethernet	10 km	uncooled DML	p-i-n
100G CWDM4 MSA	2 km	uncooled DML	p-i-n
100G PSM4 MSA	500 m	uncooled DML Si-photonics	p-i-n

Data center applications: where the high volumes are expected to be

100G (4x25G) Ethernet optical transceiver forecast



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Conclusions

1. For time-to-market, leverage the 25G SMF ecosystem
2. For low cost, leverage data center volumes for 25 Gb/s O-band DMLs
   - But will need higher launch power for PON
3. Data centers will not drive volumes of 25 Gb/s APDs.
4. Therefore, extract 25 Gb/s performance from low cost 10G PON APDs.


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