Why PSM4?

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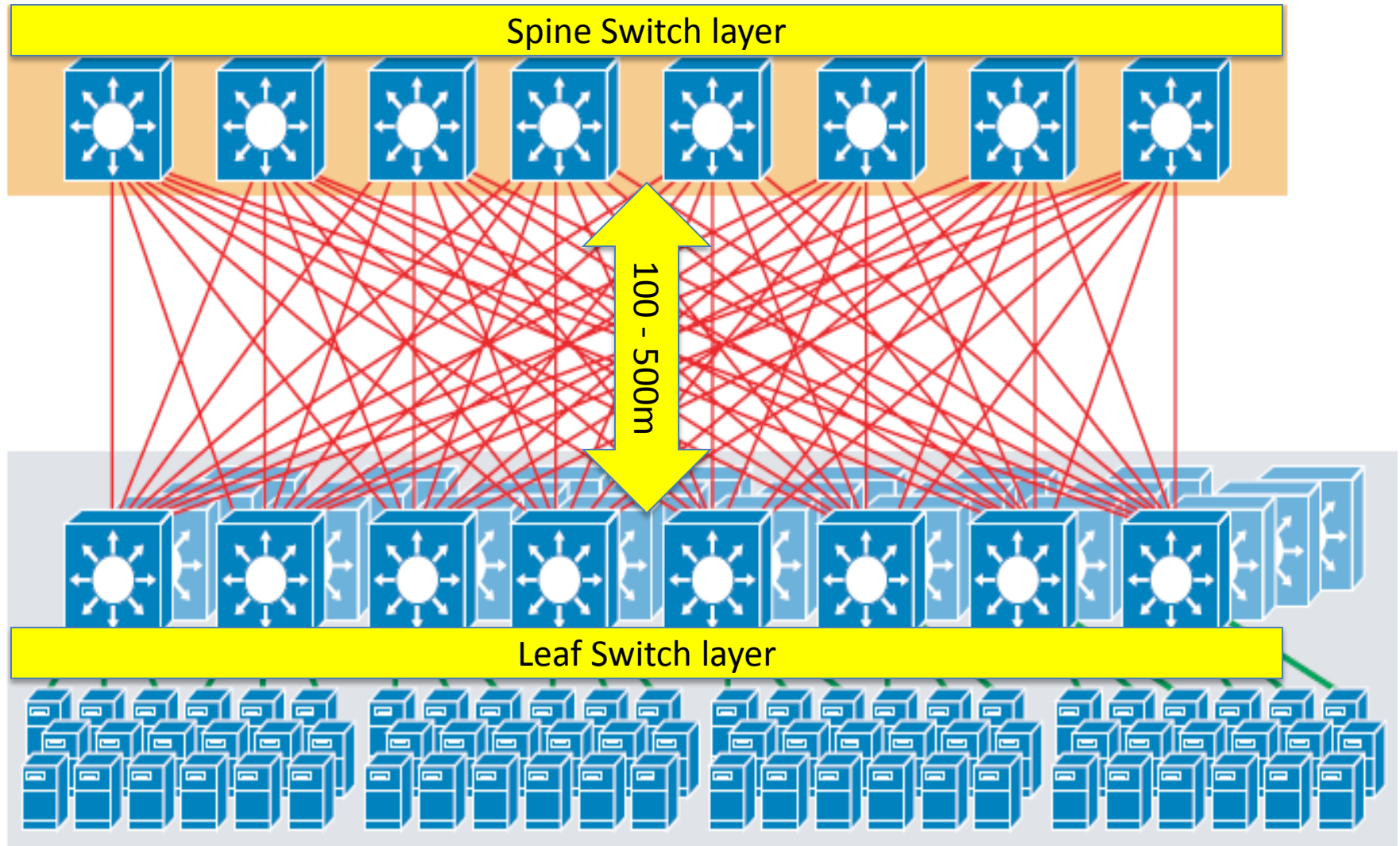Arista

Outline

- Review of data center networks

- 100G variants roadmap

- End user input

- Flat

- Lots of 'east-west' traffic

- Leaf and Spine architecture

- Large area (and predicted to grow)

Large-scale Data center network today

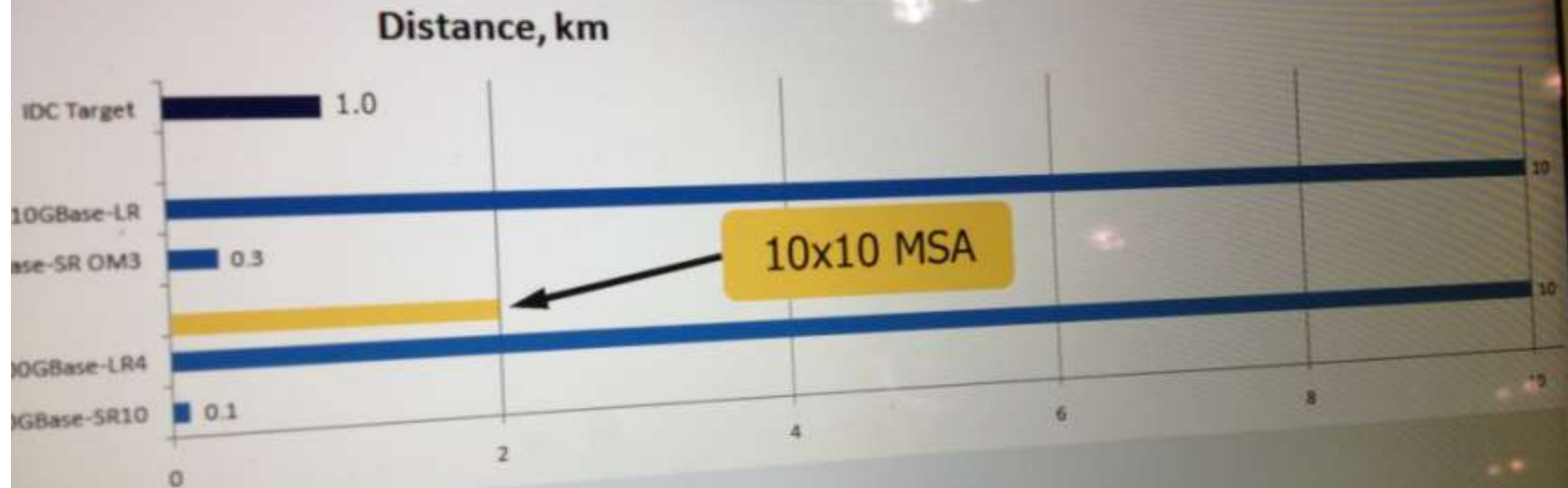Spine Switch layer

100 - 500m

Leaf Switch layer

Cost effective 100G Ethernet spine switches

- 100G needed for spines, not rack top switches
- Reach from rack-top to spine switch is 50-500m
- Overall cost is dominated by the cost of optics
- High port density per 1U is desirable
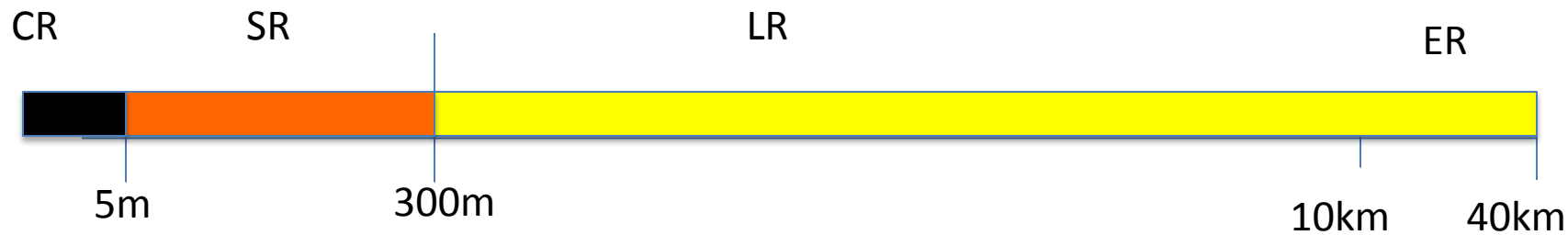- Customers will deploy the lowest cost solution that meets their requirements

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Variants for 10G and gaps for 100G

CR   SR   LR   ER

5m   300m   10km   40km

Cost optimized 100-500m
solution is critical to success of 100G

CR4   SR4   LR4   ER4

5m   100m   10km
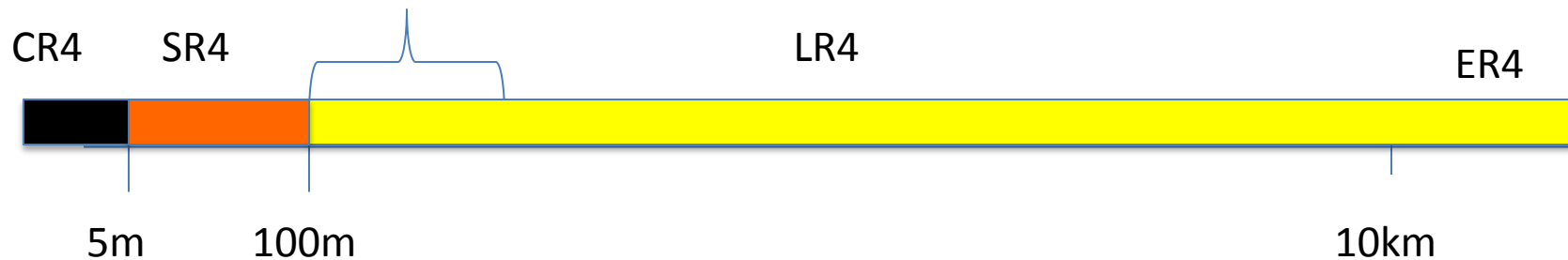
- Large European Internet exchange: We use SMF ribbon fibers throughout our data center today. A 100G solution with parallel SMF is not a problem for us.

- Very Large US data center: If PSM4 is supported in QSFP or CFP4 form factor it would accelerate its deployment. If PSM4 is the same price as SR4 it becomes very interesting.

- Medium sized data center: I don't like parallel fiber because I have to carry spares in the data center, however, cost is absolutely king and I will deploy the lowest cost technology.

- Very Large data center: I will deploy the lowest cost solution regardless of the fiber type. If PSM4 is not standardized I encourage the formation of an MSA outside the IEEE.

- Large MSO: We deploy only SMF in our data centers.

Conclusions

- Clear market demand from large data centers for a cost-effective 100G PHY with reach of 100-500m.

- Cost-optimized solution for 100-500m is critical for the success of 100G.

- Parallel SMF is significantly lower cost than parallel OM4 MMF (about ¼ the fiber cost).

- Parallel SMF optics provide the lowest overall cost solution for 100-500m reach.