



Cisco 10GbE historical PMD adoption rates



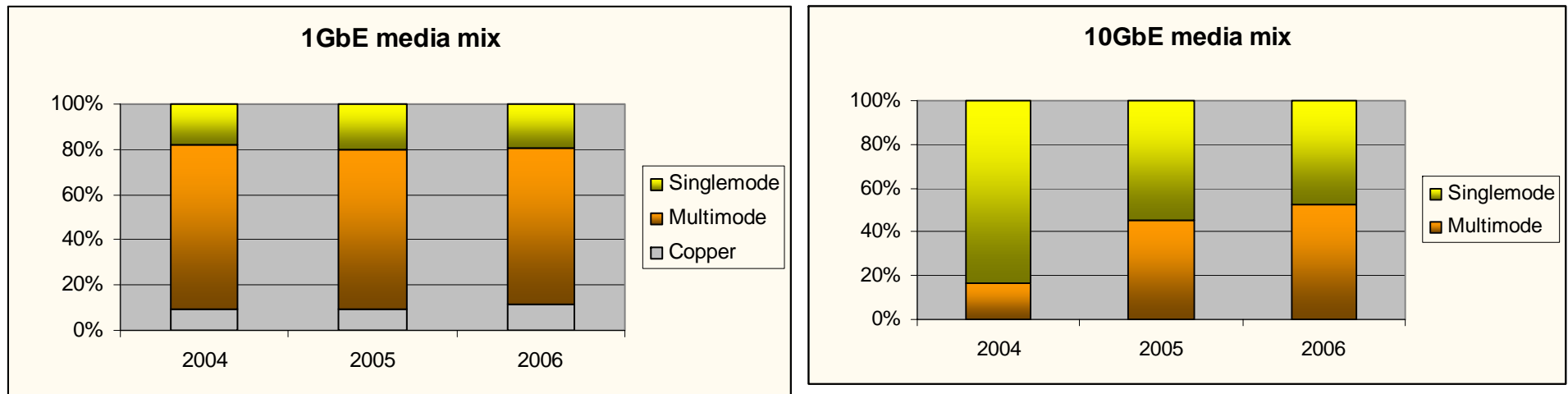
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Preface

- Customer segmentation:
 1. Service Providers
 2. Public Sector: municipalities, school districts, healthcare, government etc.
 3. Enterprise: organization above ≥ 1500 employees
 4. Commercial: organizations below <1500 employees
- 1G vs. 10G data organization:
 - Single mode/Multimode Mix
 - Customer mix
 - Single mode and Multimode customer mix
 - Single mode PMD mix and customer adoption rates
 - Multimode PMD mix and customer adoption rates

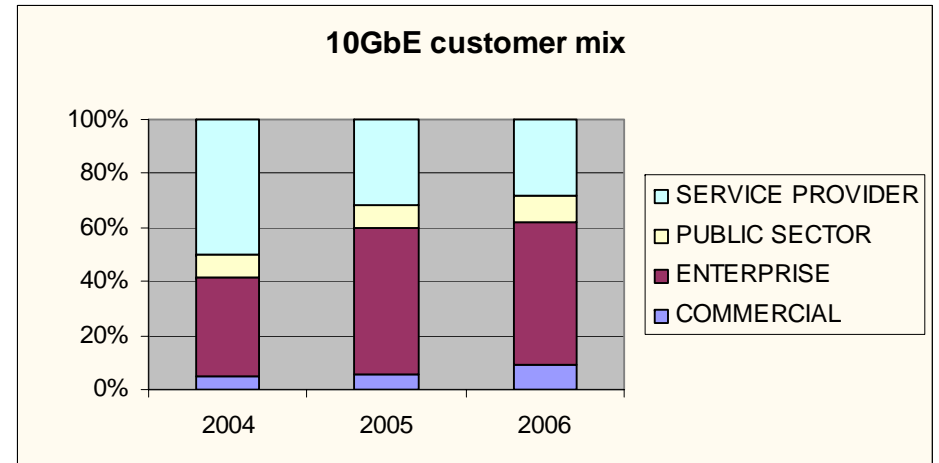
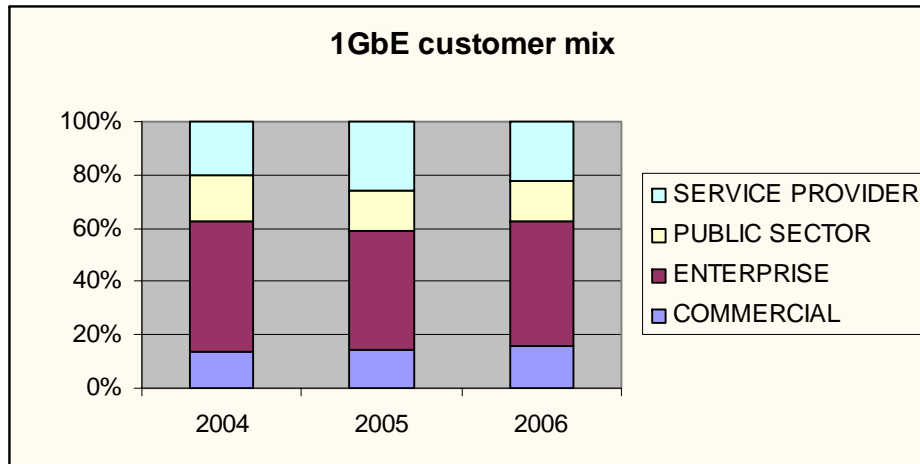
Cisco Transceivers Media Mix

- Single-Mode fiber represents the majority of the applications in the 10 GbE early adopter market → 10GbE adoptions started from the core of the networks



1GbE  10GbE

Cisco Transceivers Customer Mix



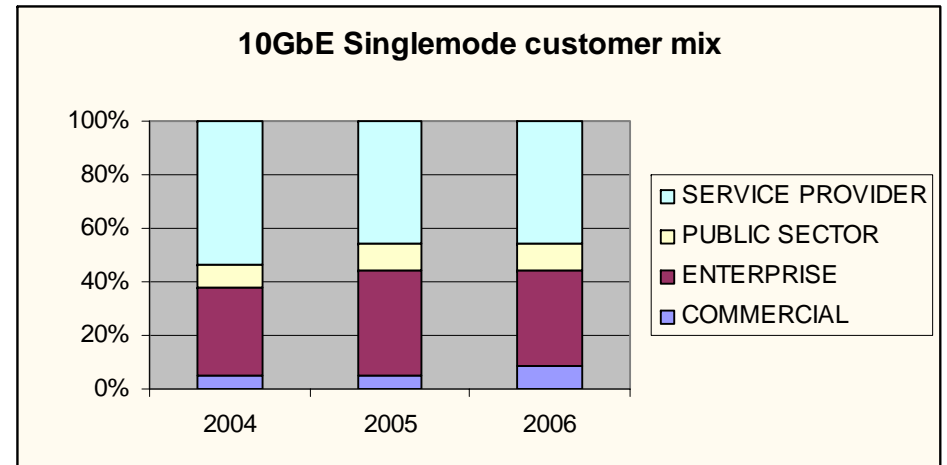
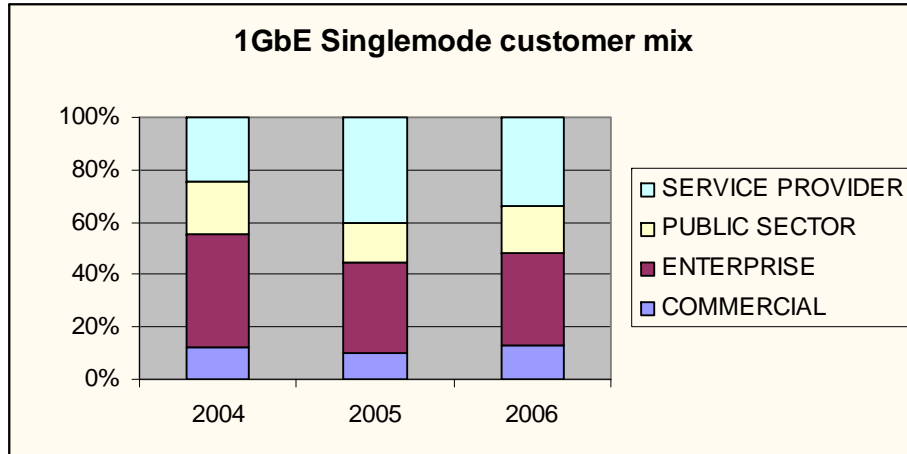
1GbE



10GbE

- 1GbE (**mature**): SP share is ~20%
- 10GbE (**growth**): SP share is ~55% and declining.
- 10 GbE early adopters: SPs and large Enterprise customers.

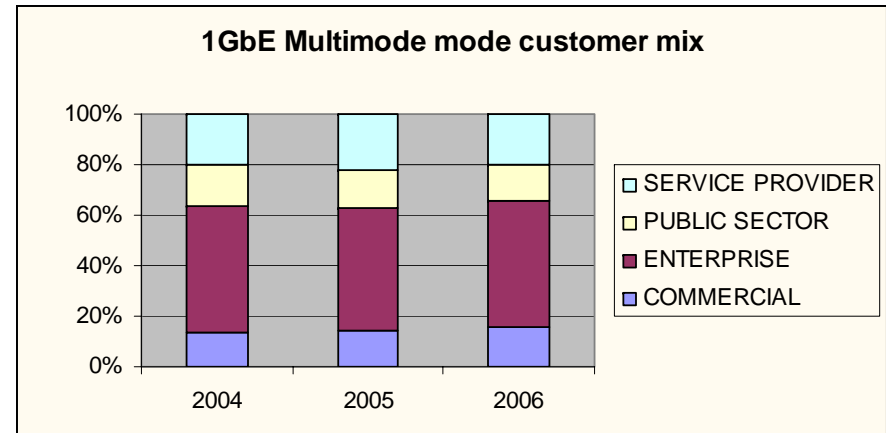
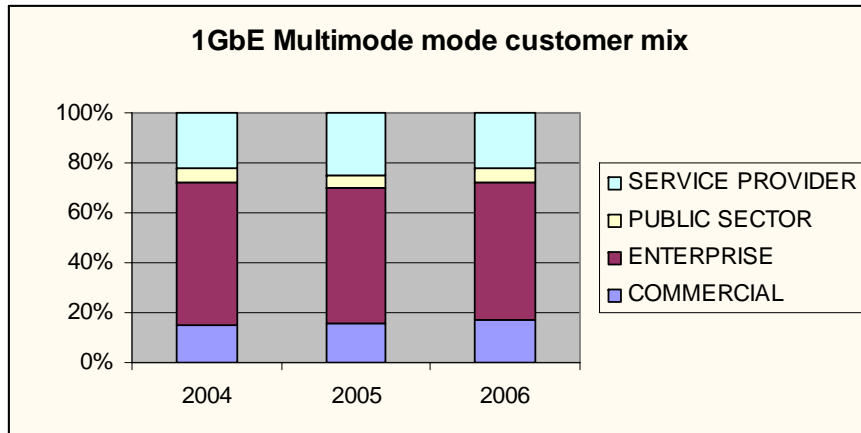
Singlemode PMDs Customer Mix



1GbE  10GbE

- 1GbE (**mature**): SP share is ~30-40%
- 10GbE (**growth**): SP share is ~50%.

Multimode PMDs Customer Mix

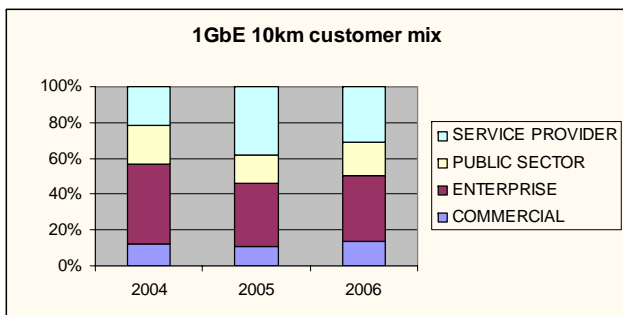
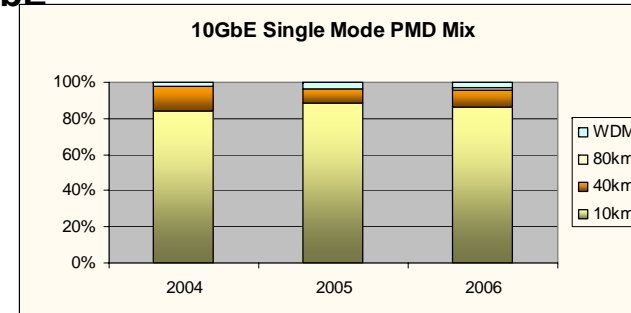
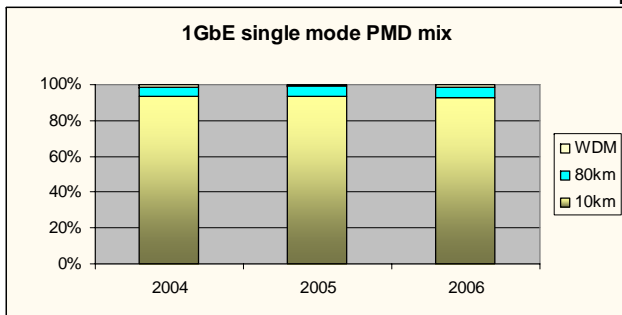


1GbE  **10GbE**

- SP vs. non-SP customer mix on multimode is ~20% for both 1GbE and 10GbE.

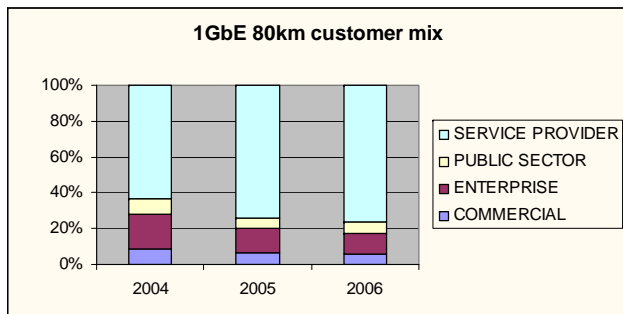
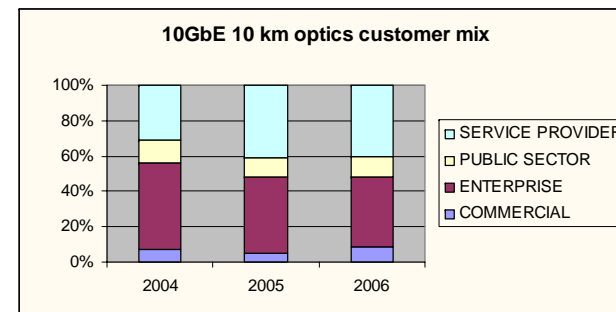
1GbE  10GbE

Singlemode PMDs and customer mix

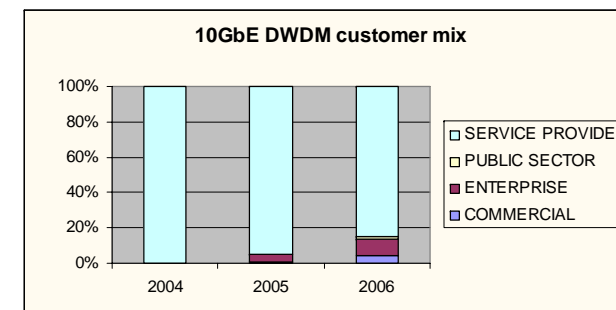
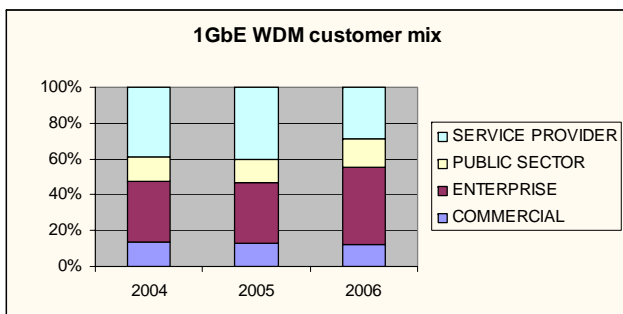
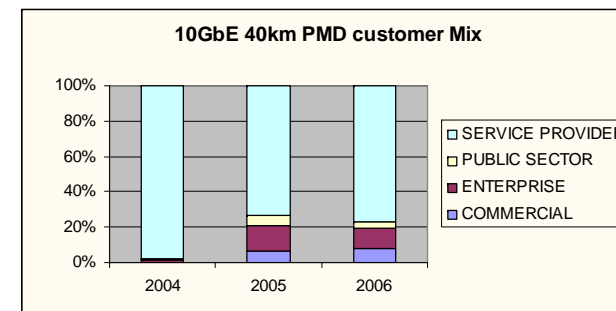


•At 10G 10km optics is split 40/60 between SP/non-SP

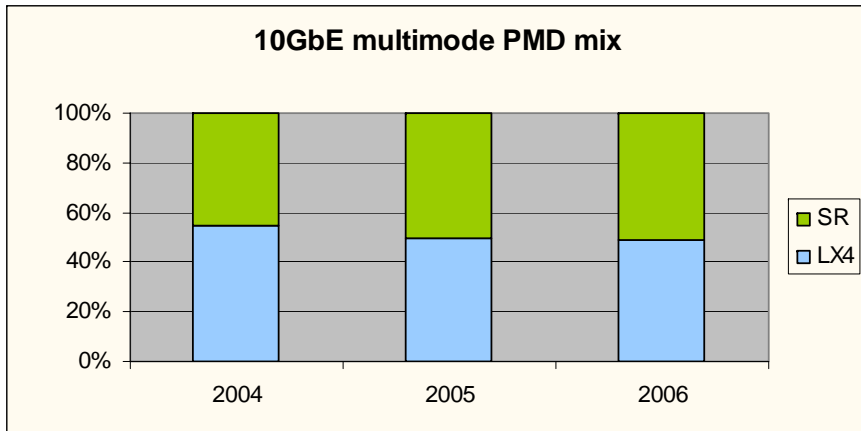
•Above 10km almost 80% of the units go to SPs both at 1GbE and 10GbE



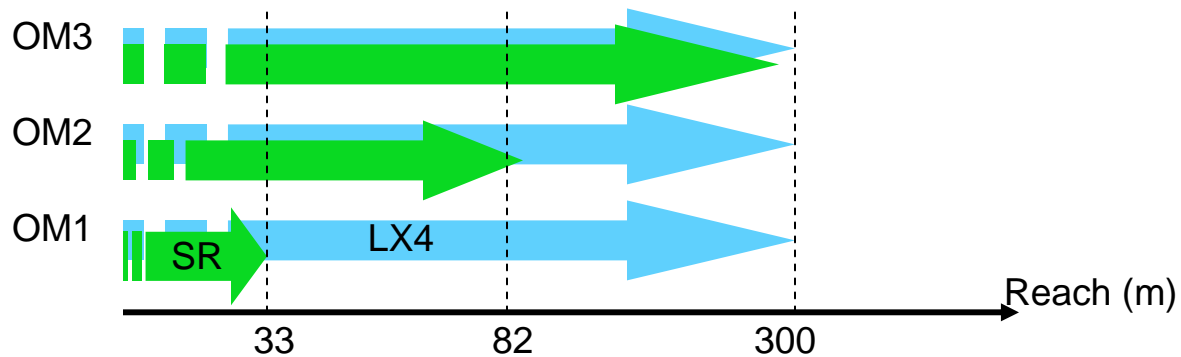
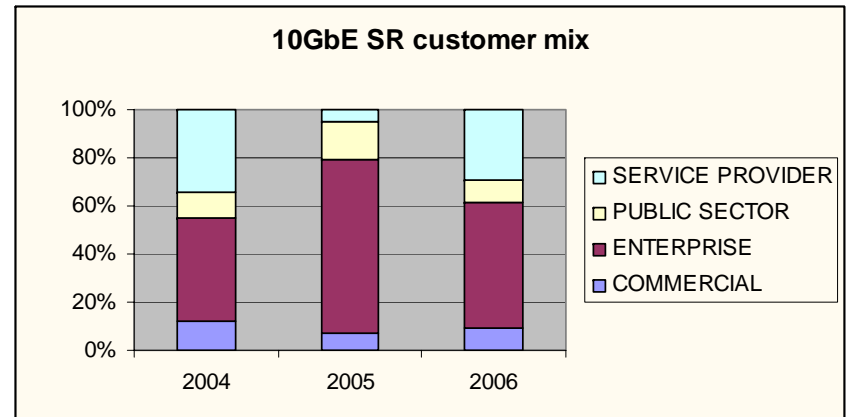
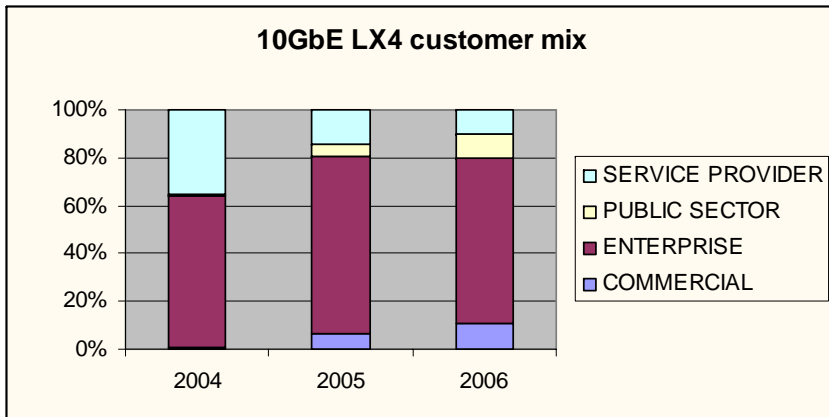
•10km optics represents about 85% of the singlemode mix.



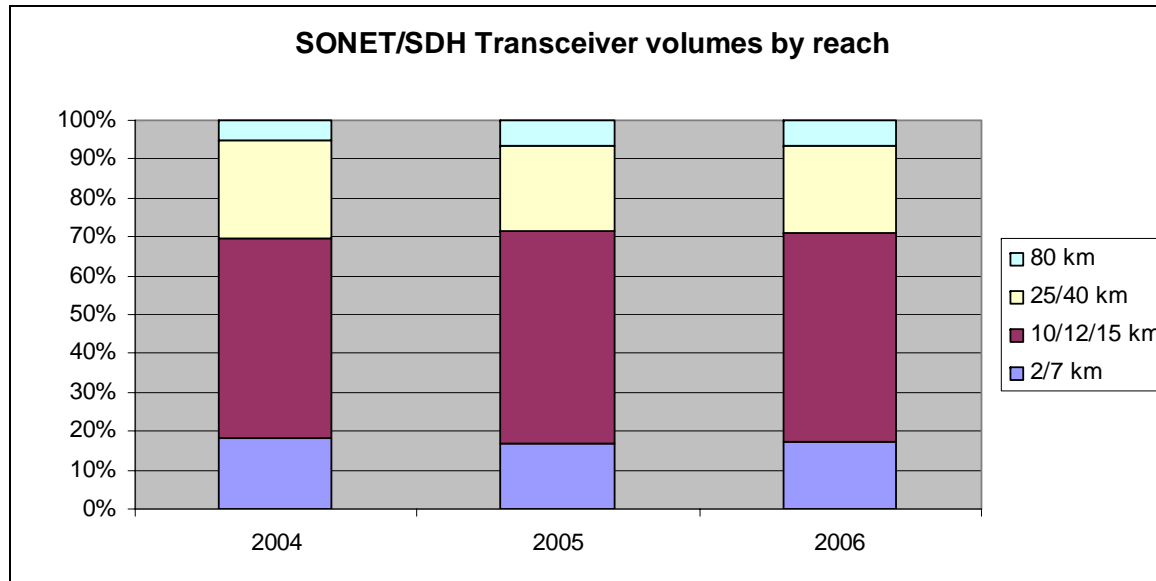
Multimode PMDs and customer mix



- Although shrinking LX4 is a critical PMD showing the traction of 10G in Campus networks (characterized by 62.5um long reach MMF).
- A MMF PMD for very short reaches would not meet the majority of the requirements for early HSE adopters.

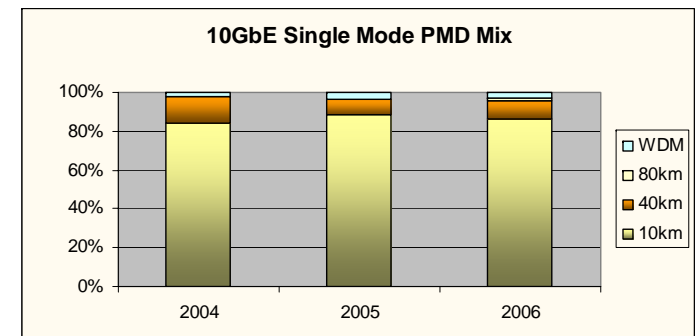
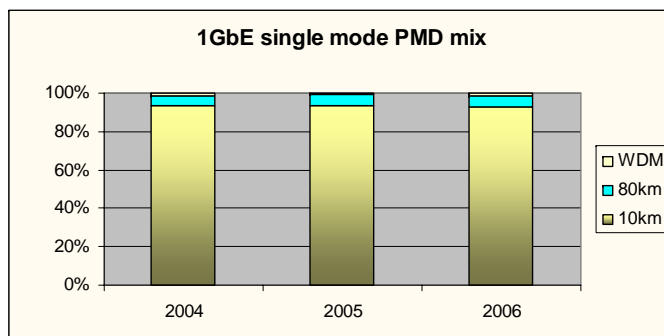


SONET/SDH Transceiver market by Reach



Source LightCounting: Q1-2006 Transceiver Market Survey Results

- Reaches ≤ 7 km represent less than 20% of the volumes.
- Up to 10km covers 70% of the SONET/SDH applications. (At 10GbE 85+% of the *single mode* optics is up to 10km).



Summary

- **Early adoption for 10GbE started from the core** of the networks: Metro/Data Center/Enterprise where distances require single mode fiber.
- **In 2006 still the 10GbE market cannot be considered mature** as 50% of the volumes are on single-mode fibers vs. just 20% for the 1GbE market.
- It is plausible that **the early-adopters market phase for HSE will last several years** and SPs and large Enterprise will drive initial volumes. It is important to **prioritize the PMD selection for the needs of early adopters**.
- HSE should be expected to have the same adoption trends If the SONET/SDH market is an indication anything less than 7km could significantly reduce the applications for HSE.
- Multimode solutions are expected to be required for data center applications, but in data centers customers also have the most flexibility in picking the transmission medium. **A single mode PMD is a viable option even for Data Centers particularly for early adopters**.
- In summary: **a 10 km single mode fiber would ensure the highest coverage of the HSE market in the first few years**. It should be made highest priority among the various PMD options.