

# **10000LX-4WDM-1.25 and 10000CX-4T-1.25 TRANSCEIVERS**

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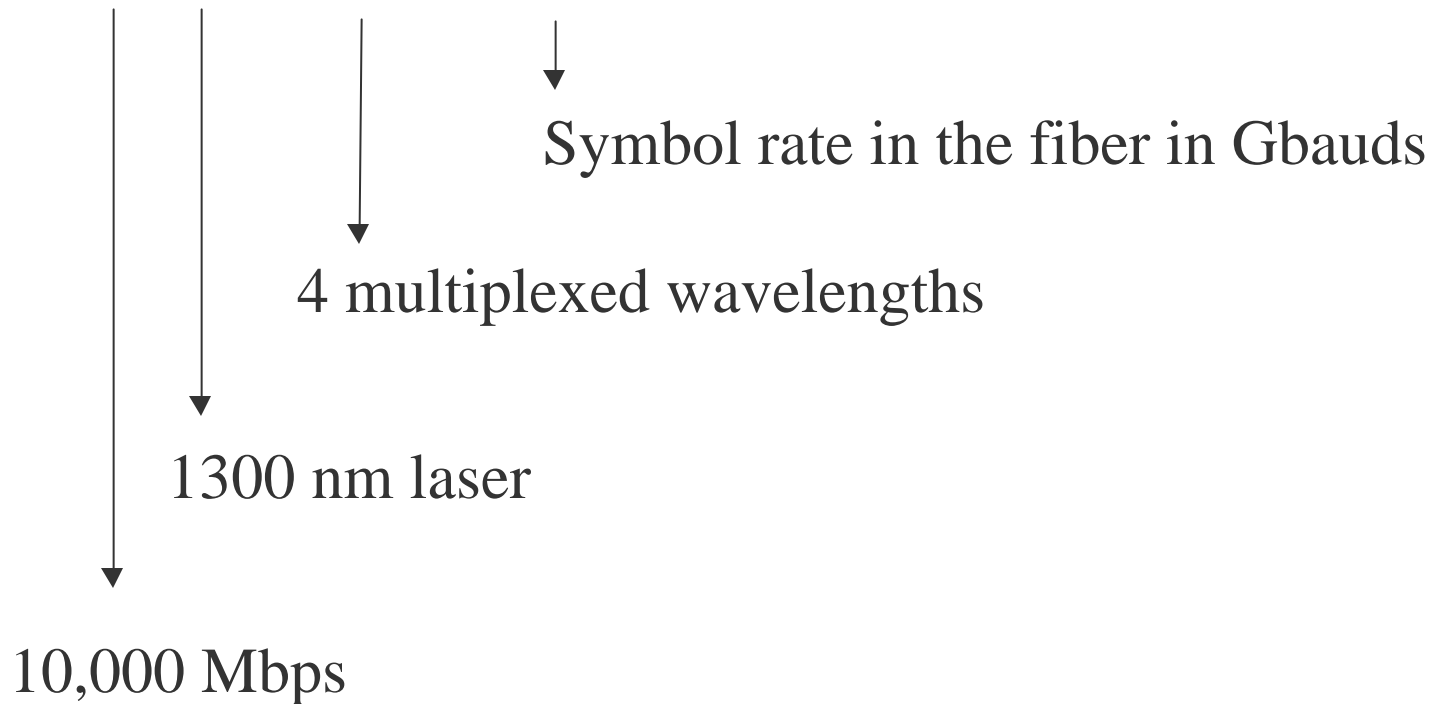
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Dallas, TX - January 2000

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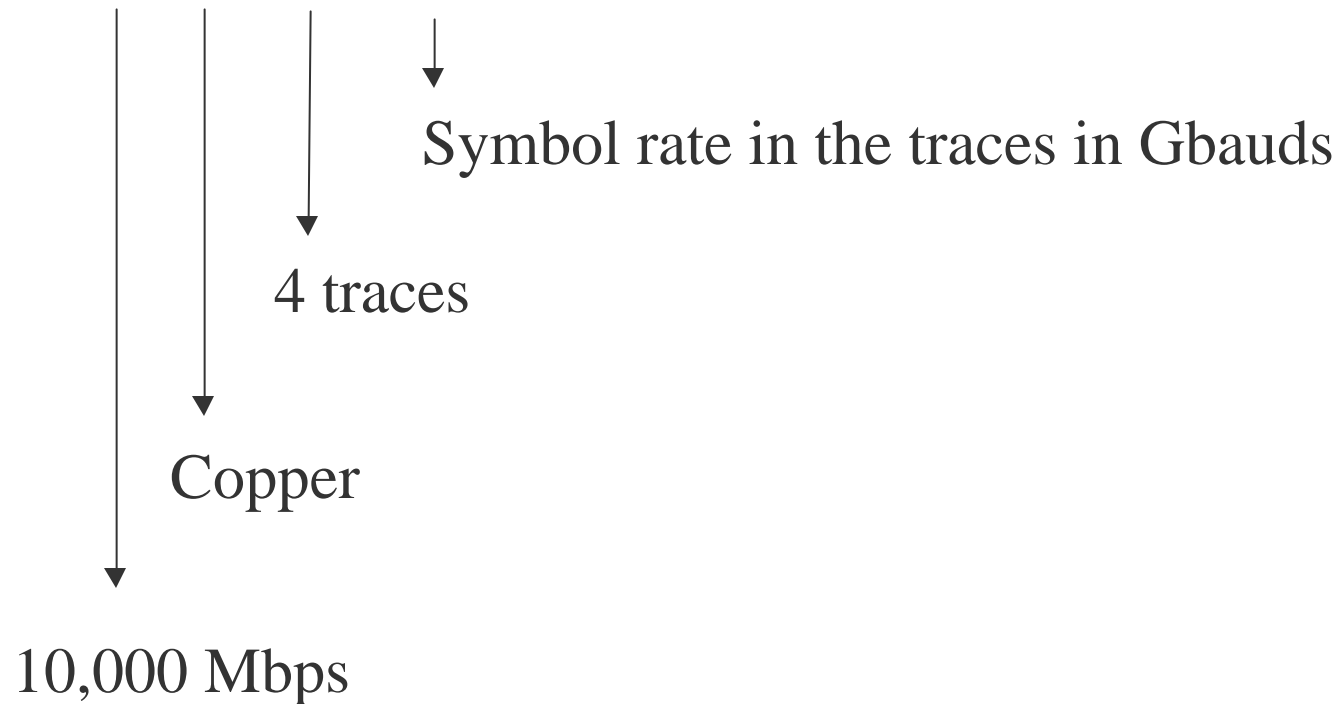
# Fiber Transceiver nomenclature

**10000LX-4WDM-1.25**

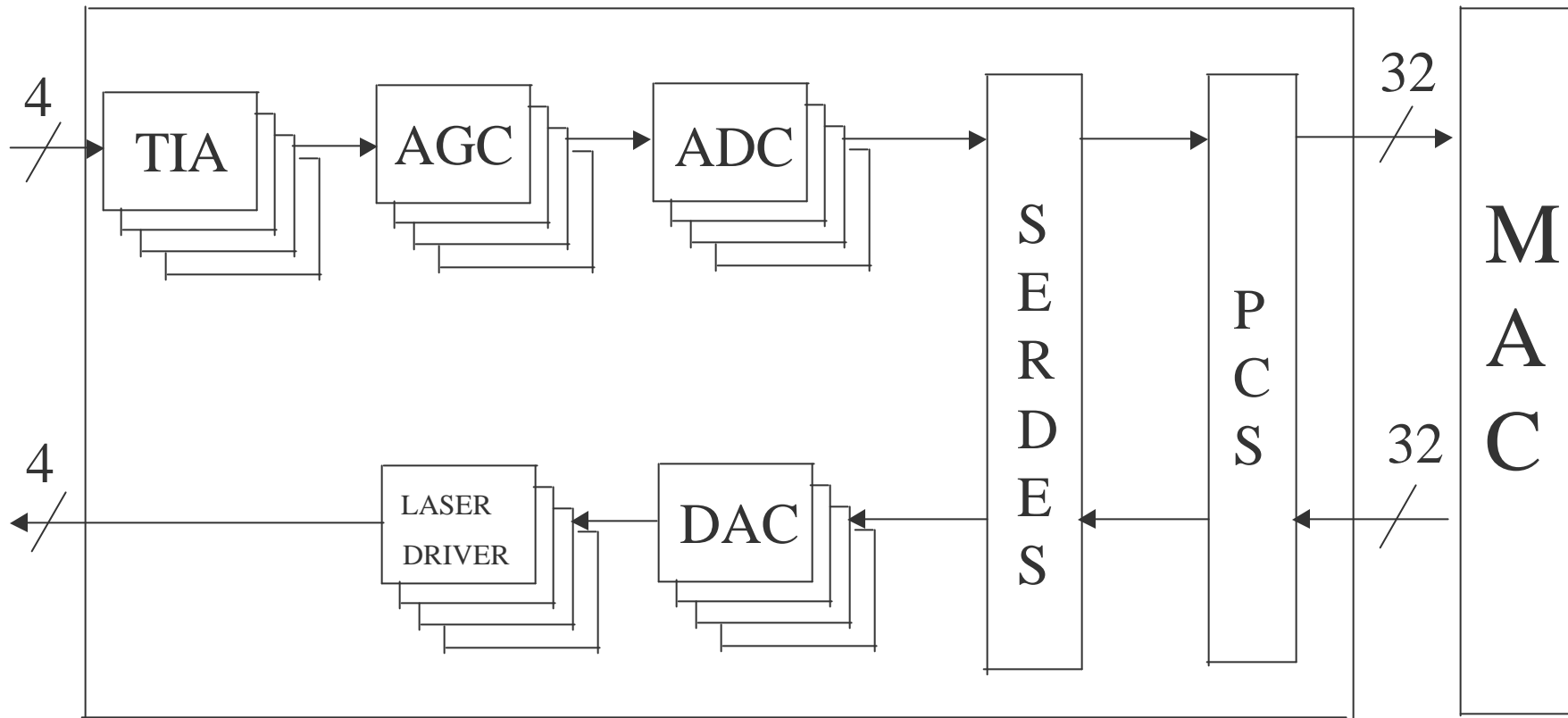


# Copper Transceiver nomenclature

**10000CX-4T-1.25**



## 1000LX-4WDM-1.25 fiber transceiver



1.25 Gbaud (PAM-5)

312.5 Mbit/s

PCS=1000BASE-T PCS

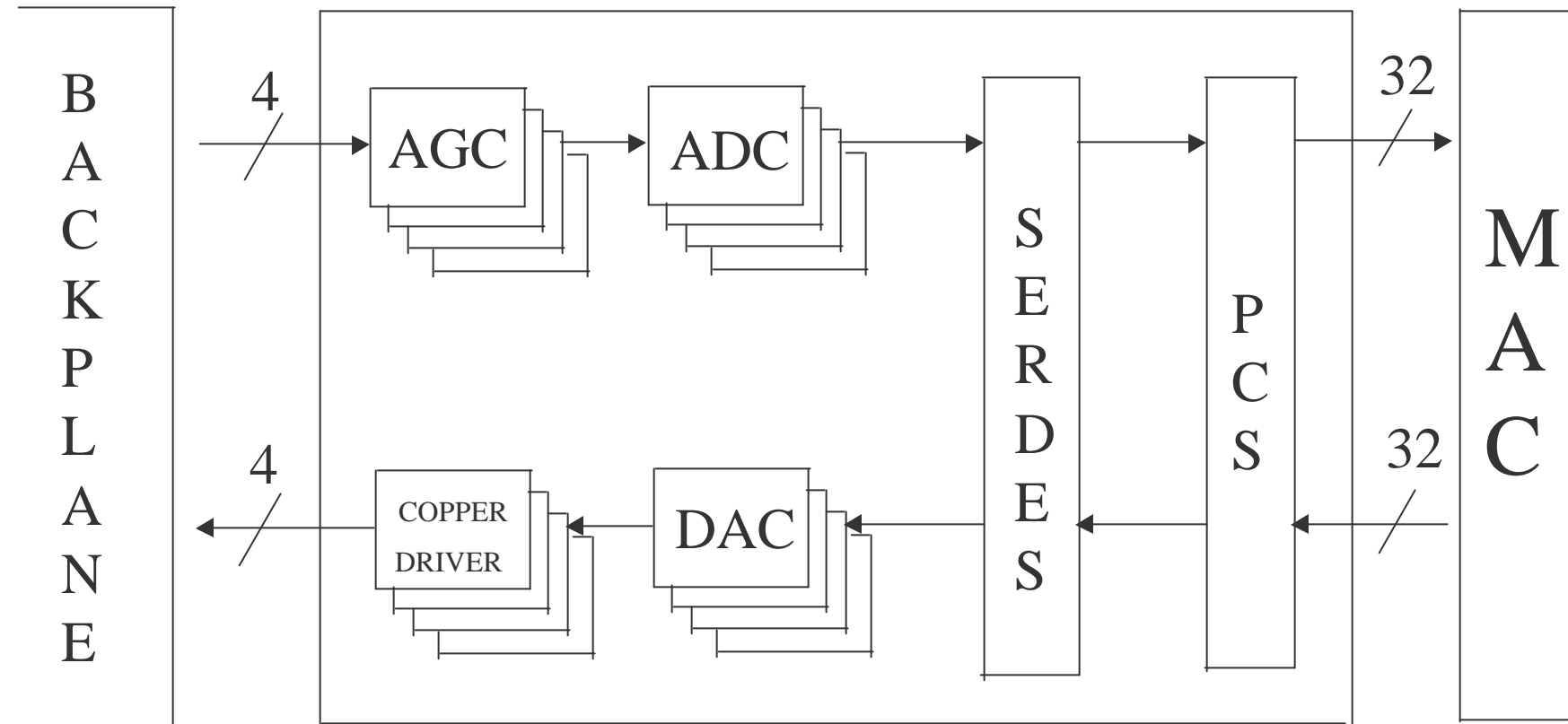
TIA = Transimpedance Amplifier

## **Advantages of 1000LX-4WDM-1.25**

- 1) Uses 1.25 Gbaud rate on the multimode fiber over link lengths of up to 300 meters. Allows the reuse of ~90 % of the installed base of MMF (link spans 0-300m), providing an easy migration path from 1 GbE to 10 GbE.
- 2) Uses the 1000BASE-T PCS, another Ethernet standard, saving considerable development time.

For a detailed analysis of this architecture see Reference 1.

## 1000CX-4T-1.25 Copper transceiver



1.25 Gbaud (PAM-5)

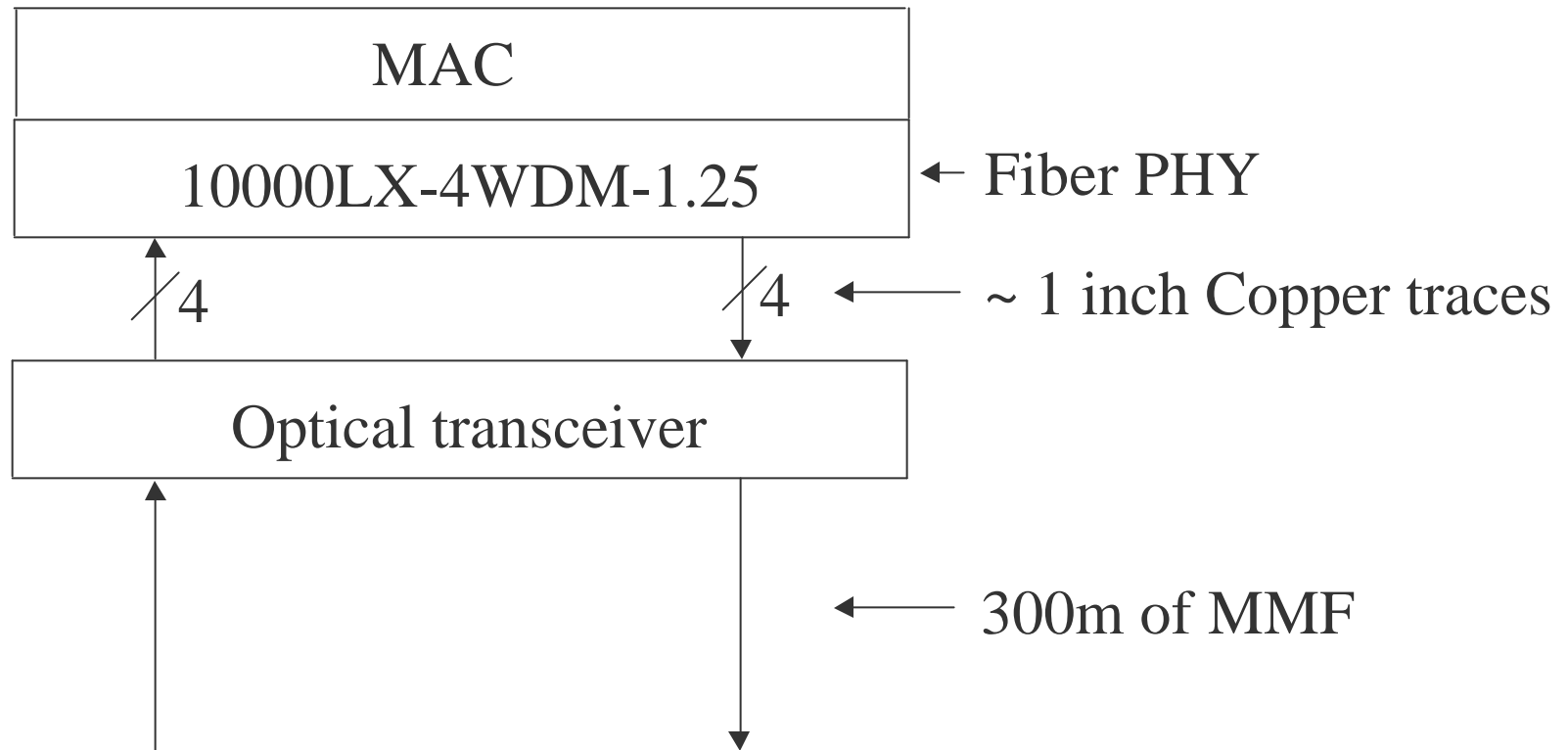
312.5 Mbit/s

## Advantages of 10000CX-4T-1.25

- 1) Uses 1.25 Gbaud rate on Copper traces. Allows the use of standard layout practices and cheap FR4-based PCBs and backplanes over extended distances.
- 2) It is a subset of the 10000LX-4WDM-1.25 transceiver. Can be used when system considerations dictate the placement of the optical transceiver far away from the electrical transceiver (~ 20 inches).

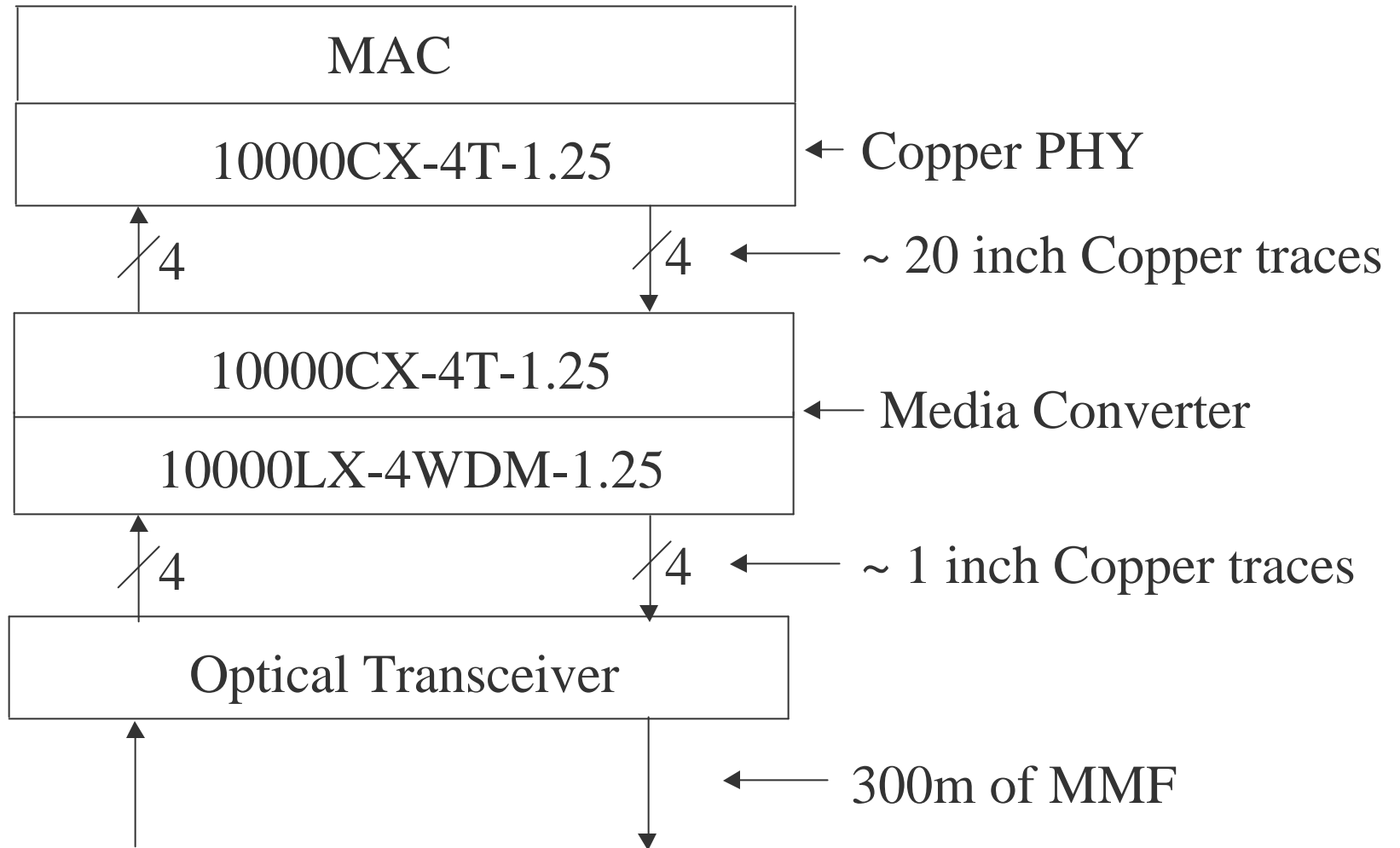
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# Basic configuration: optical and electrical transceivers in close proximity

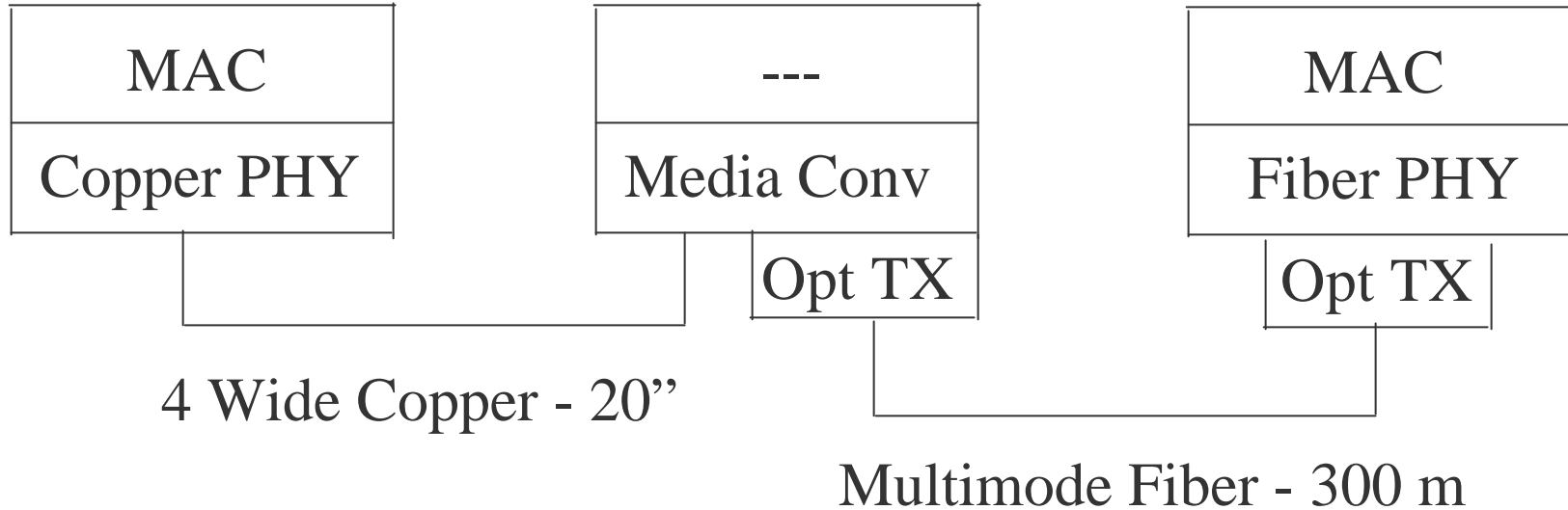




# Extended configuration: optical transceiver is far apart



# 802 model for extended configuration



(see Reference 2)

# Conclusion

The Fiber and Copper transceivers at 1.25 Gbaud provide a complete solution to the transport of 10 Gbps Ethernet frames over the installed base of multimode fiber, using standard layout techniques and materials for PCBs and backplanes.

The key advantage of this architecture is the use of the same baud rate as in 1 GbE, which allows it to reuse the same infrastructure (installed base of MMF) and common materials (PCBs, backplanes) being used today in 1 GbE.

# References

- 1) Jaime E. Kardontchik and Stefan Wurster, “300 meters on installed MMF”, Kauai presentation, November 1999
- 2) Paul Bottorff, “Hari”, HSSG Reflector, 23 Nov 1999