

Supporting multiple links at OLT

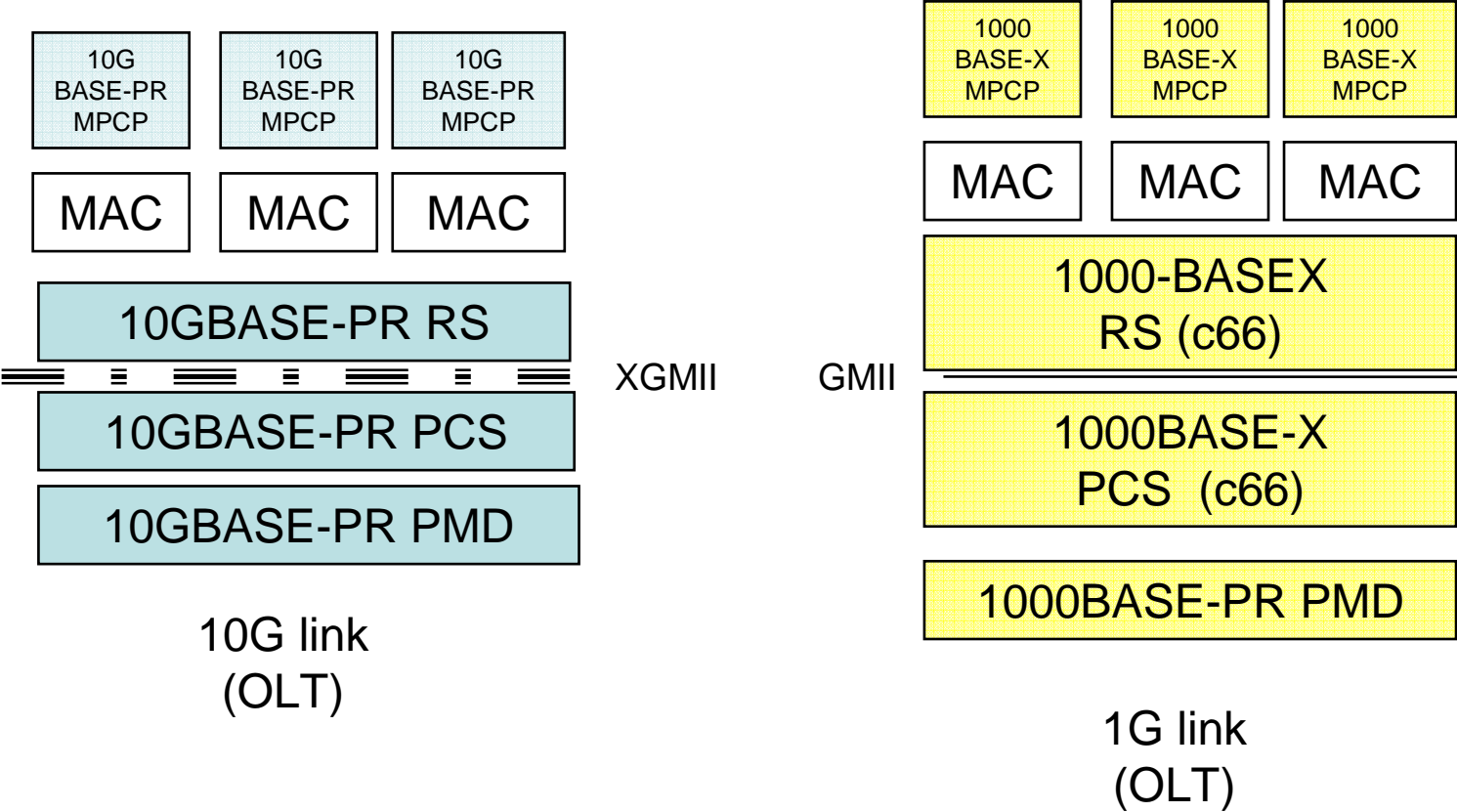
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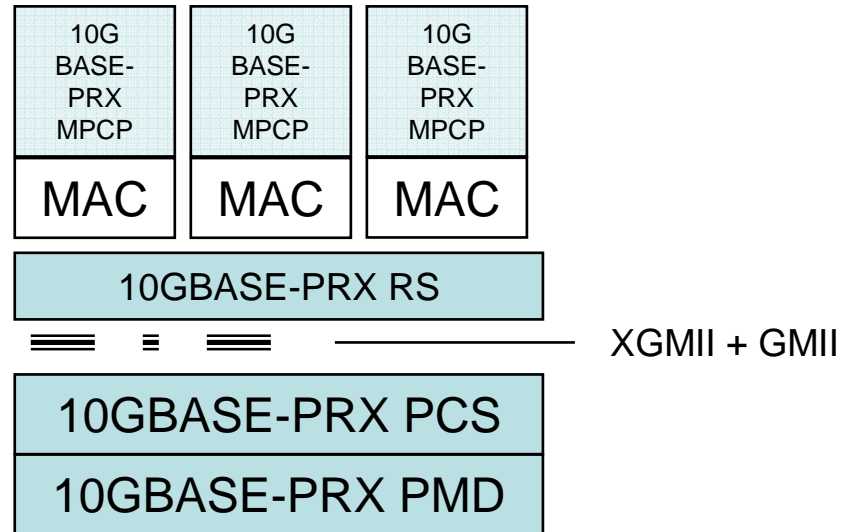
Background

1. The TF has adopted new PCS types for 10G (10GBASE-PR and 10GBASE-PRX)
2. It's desirable to clarify the components of each link type, particularly in the case where an OLT supports multiple link types.

10G and 1G Link Components

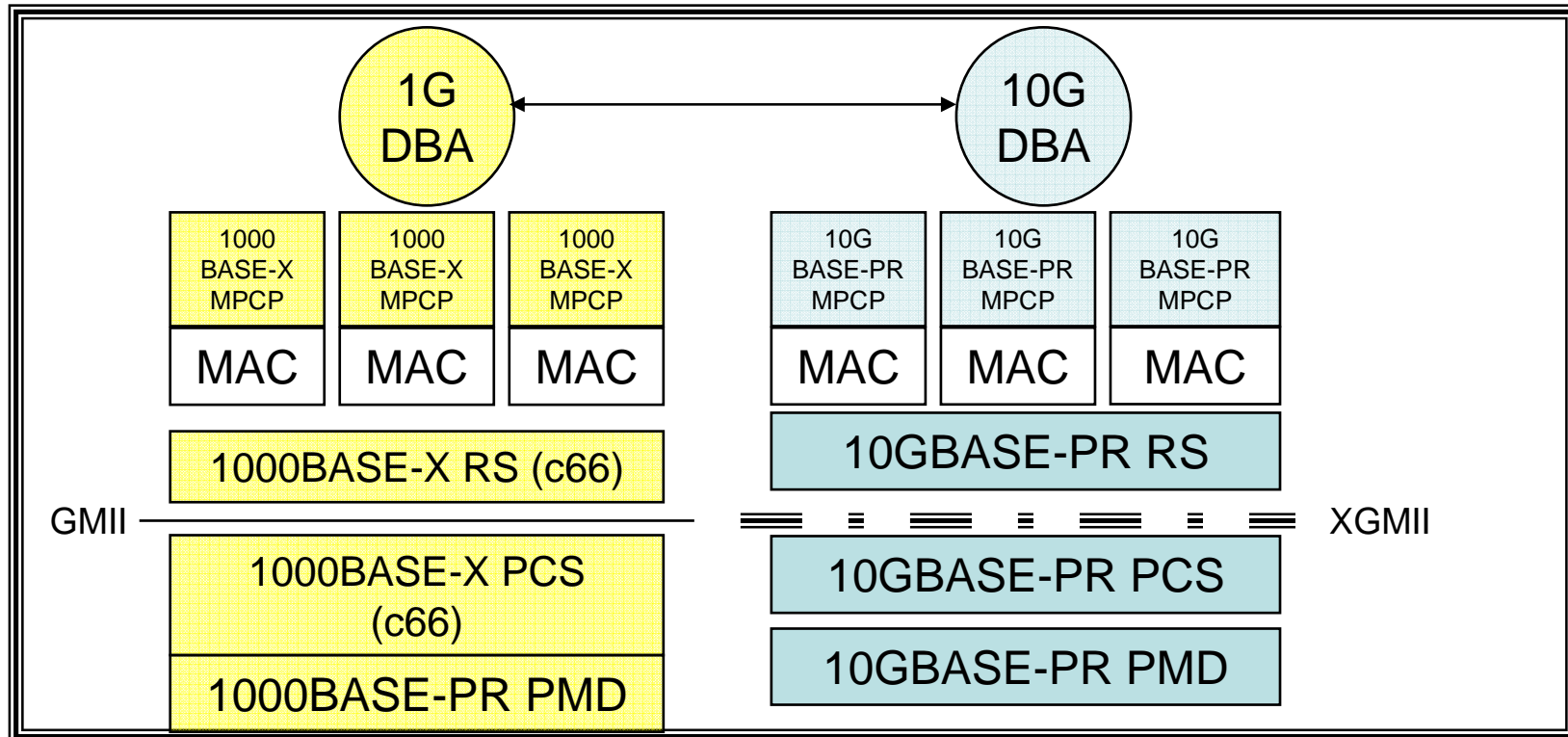


Components of 10G/1G (asymmetric) Link



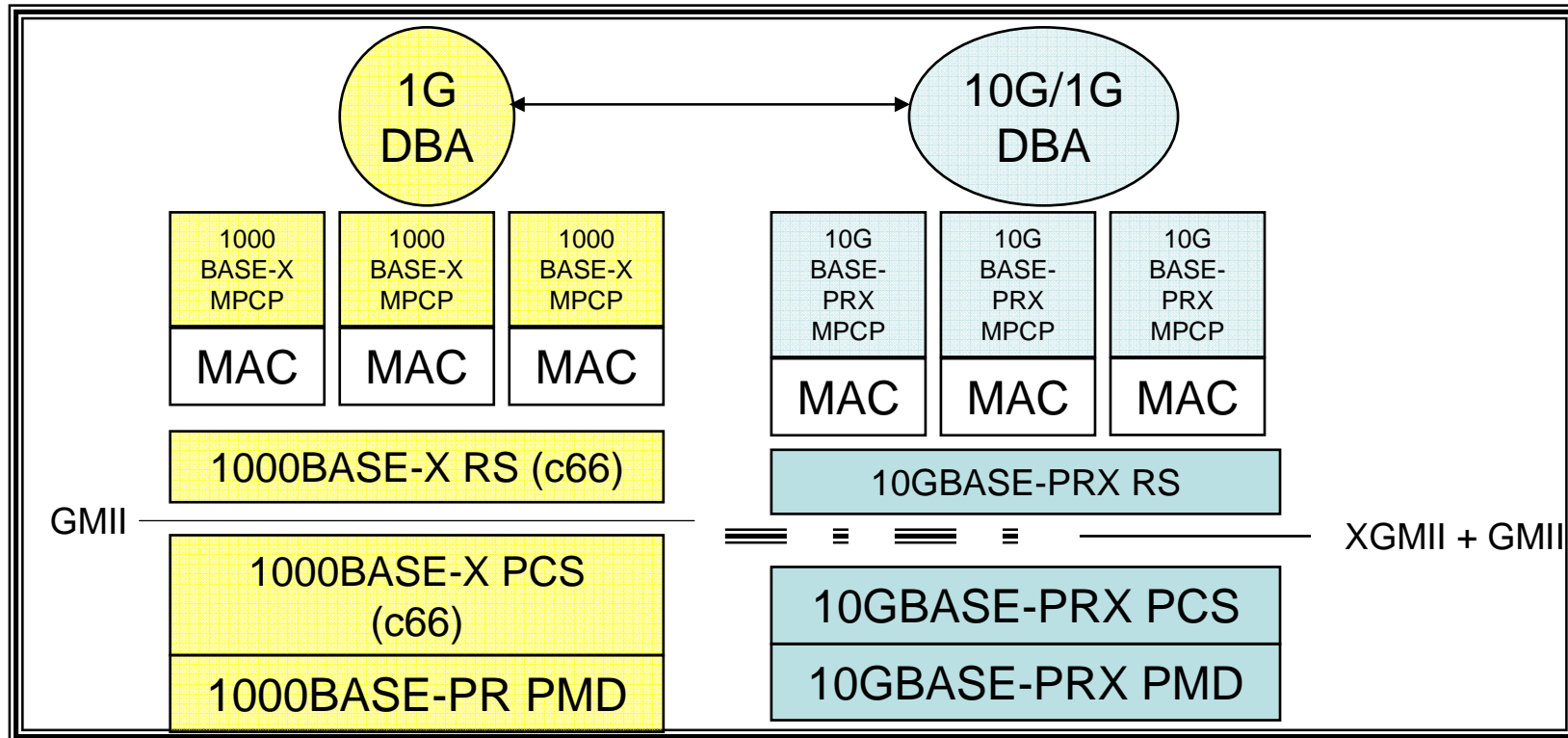
- 10GBASE-PRX RS: operates over the transmit path of the XGMII and the receive path of its GMII
- 10GBASE-PRX PCS is the hybrid 10/1G PCS. In the OLT, the Tx is 10G and the Rx is 1G

Integrated OLT supporting 10G link and 1G link



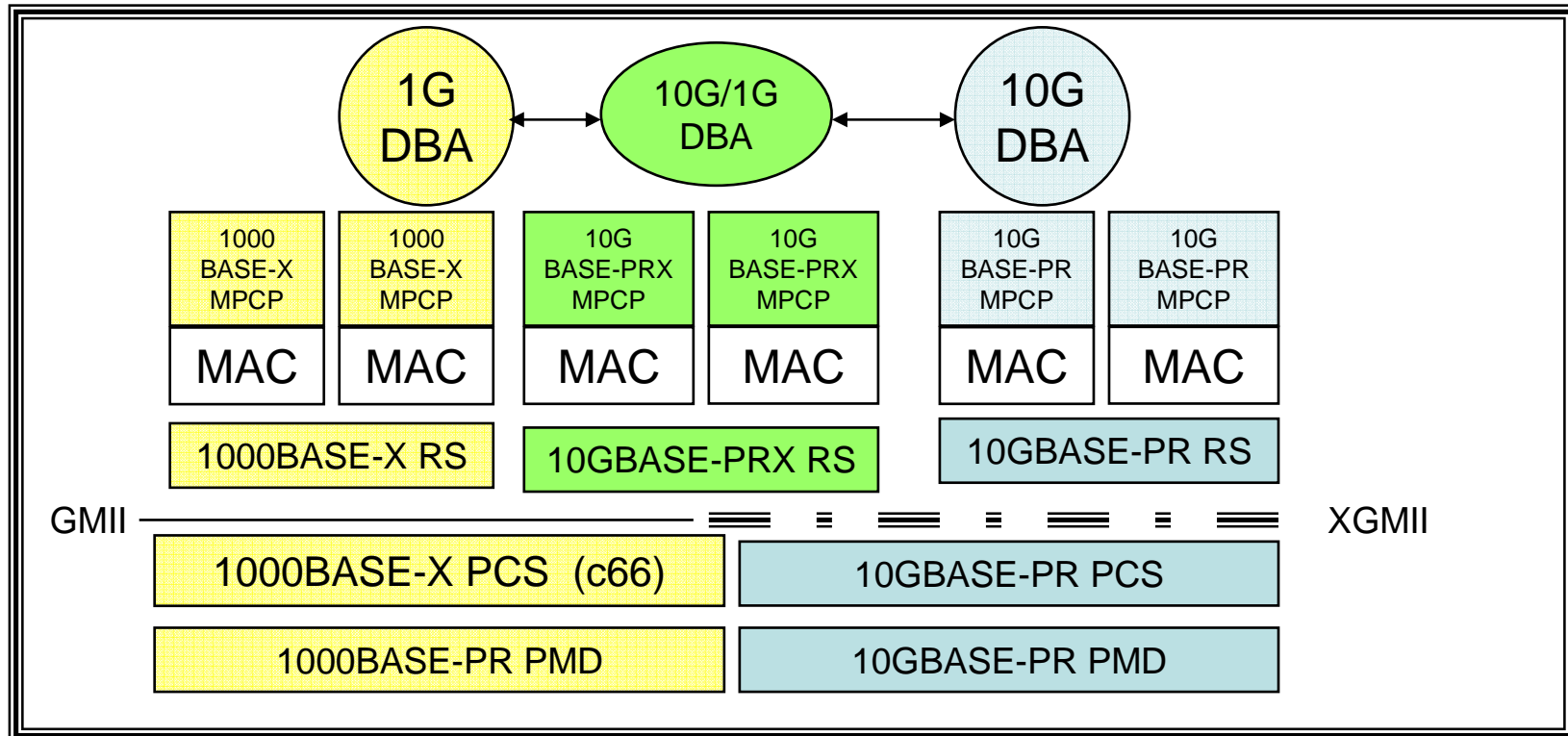
- If you like, you can build a single physical box which includes the OLT side of a 10G link as well as the OLT of a 1G link
- An implementation that does this might include parts (eg. In the receiver) that perform as part of both the 10G PMD *and* the 1G PMD
- No impact from the specification perspective to the PCS, RS, or MPCP layers

Integrated OLT including legacy 1G link and 10G/1G link



- 3 MIIs present in this case:
 - 10G/1G link uses GMII and XGMII over the “hybrid” 10G/1G PCS
 - 1G link uses a separate GMII and the 1G PCS
- Received 1G data will be received over both GMII interfaces. RS forwards up frames to its recognized LLIDs.

Support for 10G/1G ONUs in an integrated 10G/10G + 1G/1G OLT



- In this case there is no asymmetric link (ie. no PRX-type PCS or PMD), so a 10GBASE-PRX RS may be instantiated to enable 10/1 service over the 2 symmetric links

Summary

1. Specification can be written so that symmetric 10G, symmetric 1G, and asymmetric 10G/1G links operate independently. The DBA takes care of time division of upstream and downstream link resources - via mechanisms that are not part of the standard.
2. An implementation that simultaneously supports both 10G and 1G OLT does not have a 10GBASE-PRX PCS. Even so, the implementation may choose to additionally support a 10GBASE-PRX RS, so as to enable service to 10G/1G ONUs.
3. These observations should be taken into account when completing clause 92 (esp. RS) and other parts of the draft.