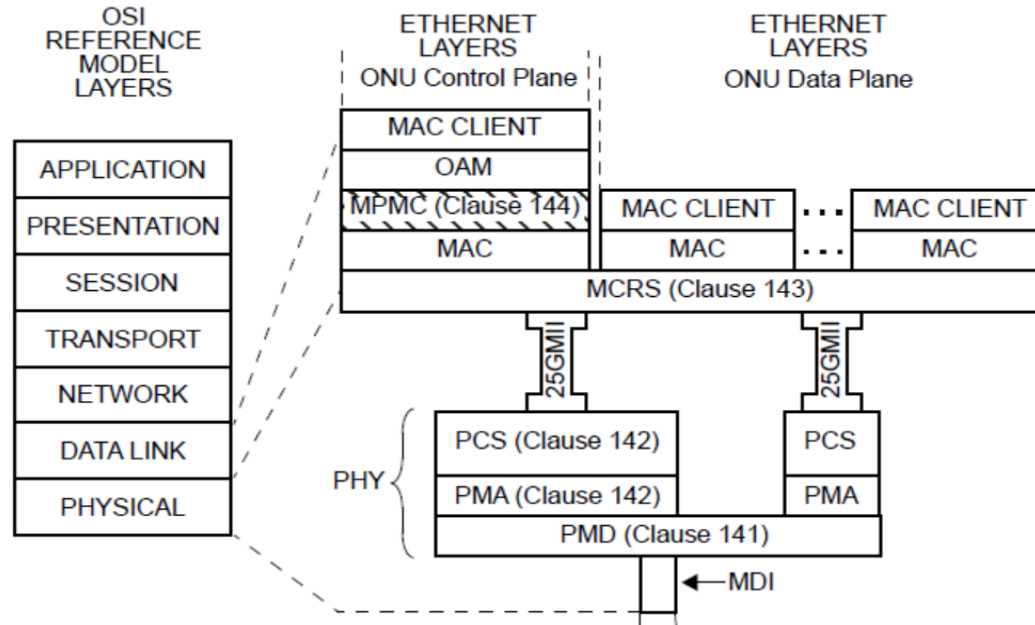


802.3ca Clause 45 & Layering

Marek Hajduczenia, Charter

802.3ca Layering



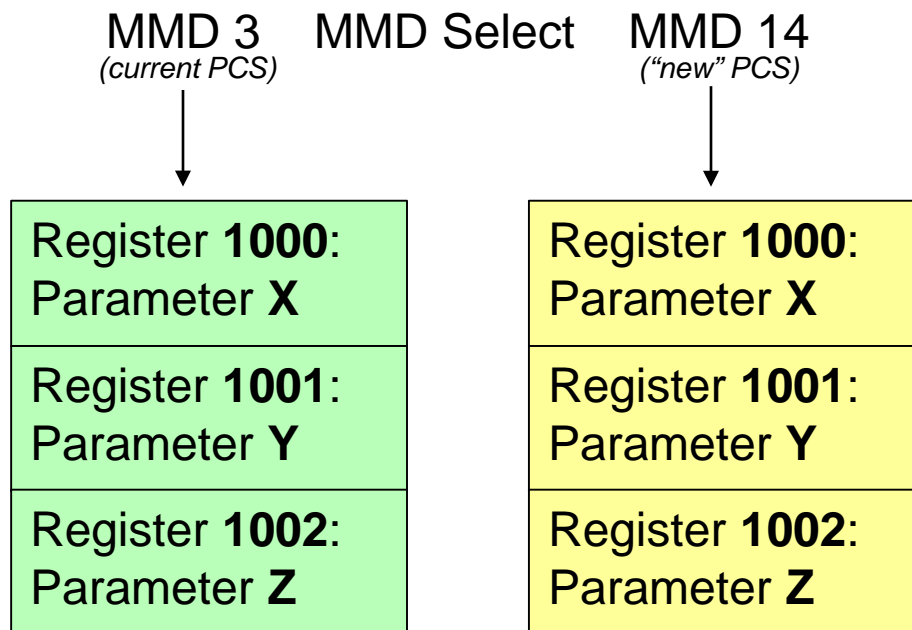
- ❑ Clause 143 MCRS – defined as a single instance that supports 25G-EPON and 50G-EPON
- ❑ Clause 142 PCS / PMA – one instance used in 25G-EPON, two identical instances used in 50G-EPON.
- ❑ Clause 141 PMD – defined as a single instance that supports 25G-EPON and 50G-EPON

- For IEEE P802.3ca PCS Clause 45 registers, two approaches are possible:
 - Scenario 1: Each PCS instance uses independent (non-overlapping) register address space. Management entity uses PCS instance number to calculate PCS register number.
 - Scenario 2: Each supported PCS uses overlapping address space (identical register map), and management entity uses PCS instance number (MMD, see Table 45-1) to identify which PCS it is reading from / writing to.
 - Specific approach (Scenario 1 versus Scenario 2) depends on actual physical implementation intended for the system. For example, a single silicon covering MAC and PHY can use either scenario. For separate MAC and independent PHY instances, Scenario 1 is not feasible.
 - Examples on next page

- Scenario 1:
Common register map

Register 1000 : Parameter X for PCS inst. 0
Register 1001 : Parameter X for PCS inst. 1
Register 1002 : Parameter Y for PCS inst. 0
Register 1003 : Parameter Y for PCS inst. 1
Register 1004 : Parameter Z for PCS inst. 0
Register 1005 : Parameter Z for PCS inst. 1

- Scenario 2:
Identical register addressed
with MMD number:



MMD 14 is an example only

- ❑ Does Clause 45 provide any “instance selector” or “channel selector” mechanism?
 - Each PCS/PMA is assigned a separate MMD (Table 45-1). Limited number of MMDs are available (14-27 today). Allocating a new MMD for .3ca could work, but it is not scalable to larger instance numbers.
- ❑ Is current MDIO capable of interfacing with multiple PCS instances, and address each instance independently?
 - Yes, but it requires each PCS/PMA to be assigned a separate MMD number.
- ❑ How would one define C45 register set for a hypothetical project where a number of PCS/PMA/PMD instances is auto-negotiated or is an implementation choice?
 - Likely the number of MMDs would have to be extended from current 32 limit.

Thank You