System Vendor's View on EPoC

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Ground setting

- EPoC = EPON over Coax
- As the name suggests, EPoC is expected to extend EPON to operate over coax plant or mixed fiber and coax plant
- This specification is expected to be part of the Ethernet family of standards and will reuse, to the largest extent possible, existing specifications for MAC, MAC Control and other functional blocks defined for other PMD types
- The following slides present some high level considerations about directions where we (as a system supplier with EPON experience) believe the SG and then TF should be heading.

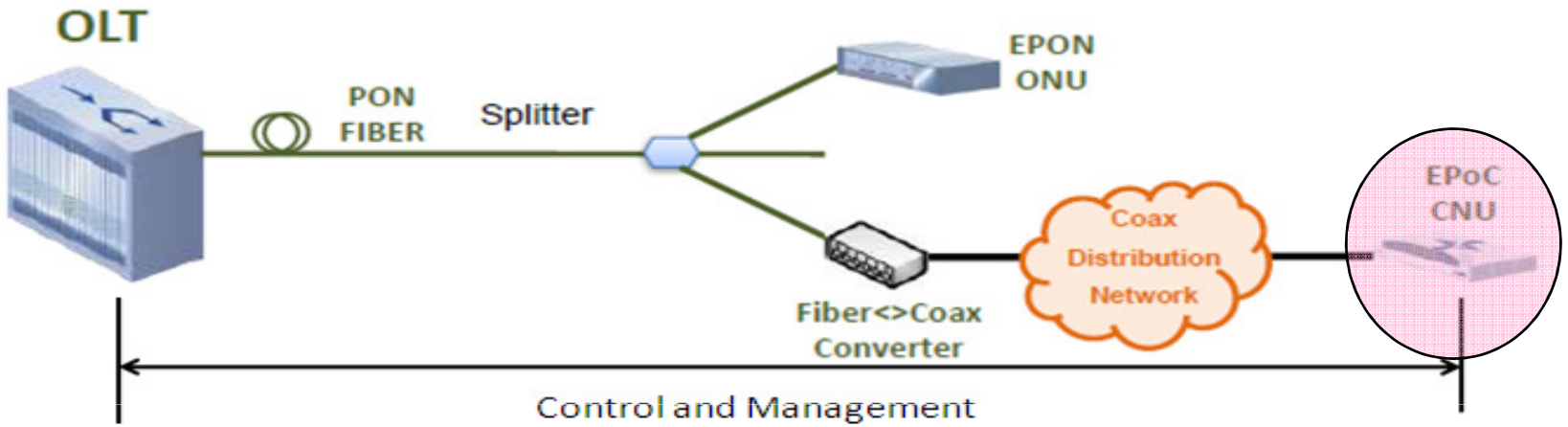
Two paths forward

- There are at least two paths that this project can take:
  - Reuse EPON MAC and MAC Control (MPCP) as defined for EPON, extending only where necessary, e.g. new MPCP message? New OAM message? New management parameters. The scope of changes is undefined at this time (TBD)
  - Redesign MAC and MAC Control completely. In this case, the project would become something other than EPON, and would require a new CFI
- We strongly believe that the project should take the first path and try to limit the number of extensions to MPCP to facilitate the development of EPoC gear

What happens if …

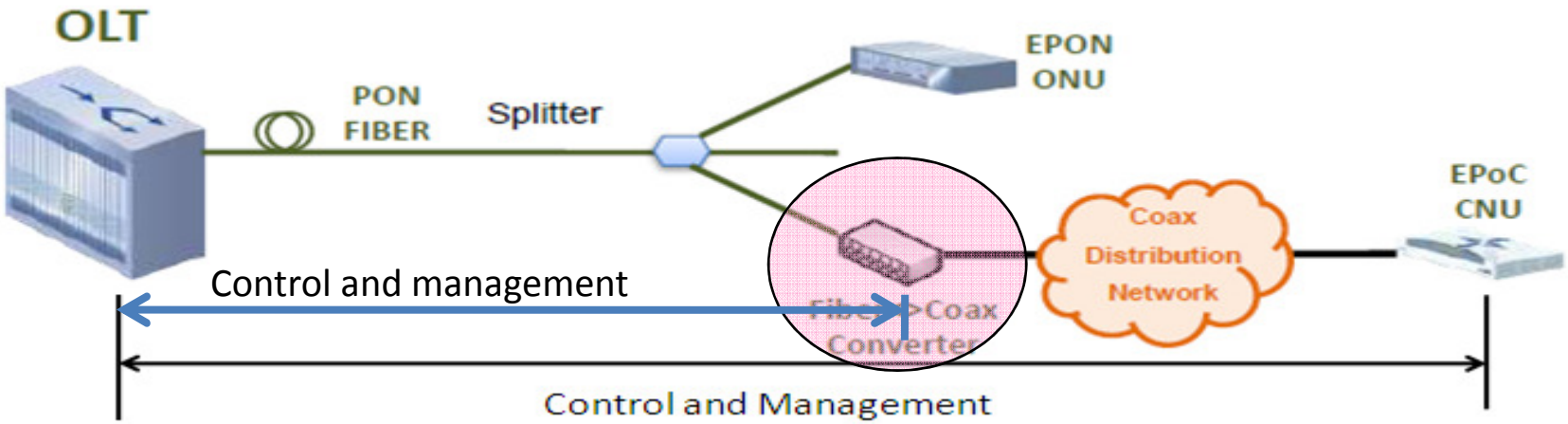
- … too many changes are made to MAC and MPCP?
  - Currently deployed EPON gear will have to be replaced if we want to use it to directly manage CNUs
  - Chipset vendors and system vendors will have to modify existing products, making them less competitive in terms of cost.
  - Development cycles will be extended, since new features and functions would be required. These will not be as thoroughly tested as EPON is today.
  - Finally, a number of other specifications derived from EPON spec would have to be extended and at least examined in detail (CCSA, DPoE in CableLabs)

Re-use the EPON stack in the CNU



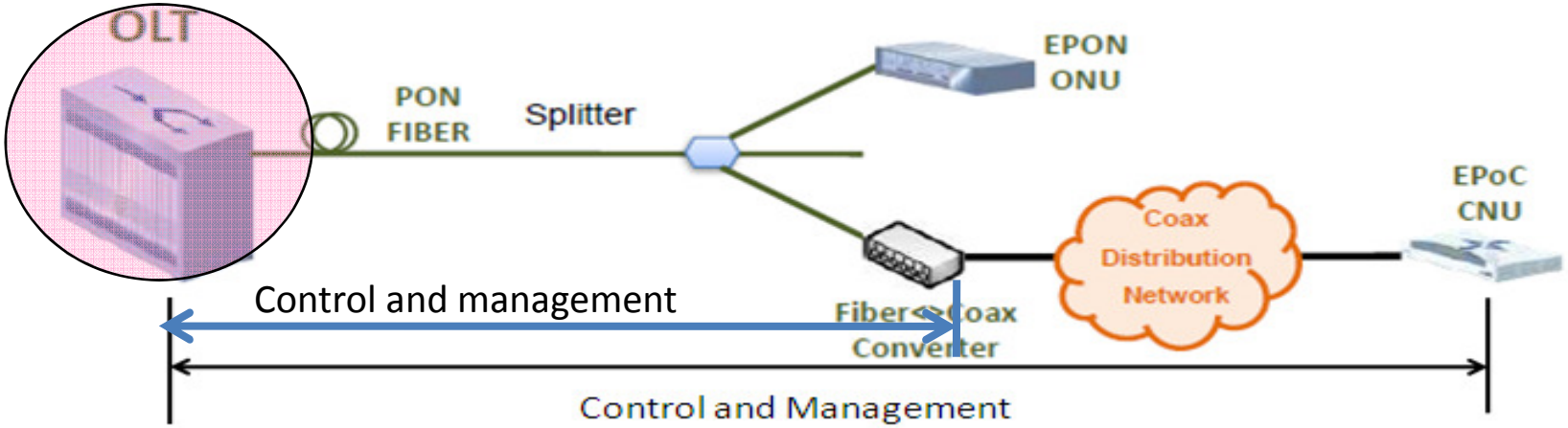
- This and following slides assume transparent CNU management from EPON OLT
  - The CNU registers to the OLT via MPCP
    - Same discovery and registration and report mechanism as in EPON (1G and 10G versions)
  - Centralized Management for ONU and CNU
    - The OLT manages ONU and CNU using OAM (Clause 57) and extended OAM (SIEPON?)

Optical Coax Unit (OCU)



- Managed by EPON OLT
- May perform data rate adaptation (if needed) under control of EPON OLT, depending on the quality, conditions and spectrum availability in coaxial part of the ODN
- May perform additional data filtering to limit coax bandwidth requirements

EPON OLT reuse



- The currently deployed EPON OLT and ONUs should be reused to the largest degree possible. Software changes are possible (and reasonable), but hardware elements should remain unchanged
- EPON OLT manages and controls the operation of EPON ONU, EPoC CNU and EPoC OCU
- Reuse the current DBA mechanism in EPON OLT (while leaving DBA implementation details outside the scope of the standard)

Suggested path forward

- Modify the MAC and MAC Control *only if absolutely necessary to support EPoC* and unconditionally maintain the compatibility with current EPON standards.
- Attempt to limit the scope of changes to management software (system elements implemented typically in software)
- Reuse the currently deployed EPON OLT and ONUs
- The OLT controls and manages the CNU directly
- The current discovery, registration and bandwidth assignment schemes should not be changed. The same applies to DBA even though it is not in the scope of the spec.

Thank You!