

# *Management Architecture and Requirements for FTTdp*

BBF/SIEPON Joint  
Workshop

Chris Croot

Co-Chair BBF O&NM WG

Editor WT-318



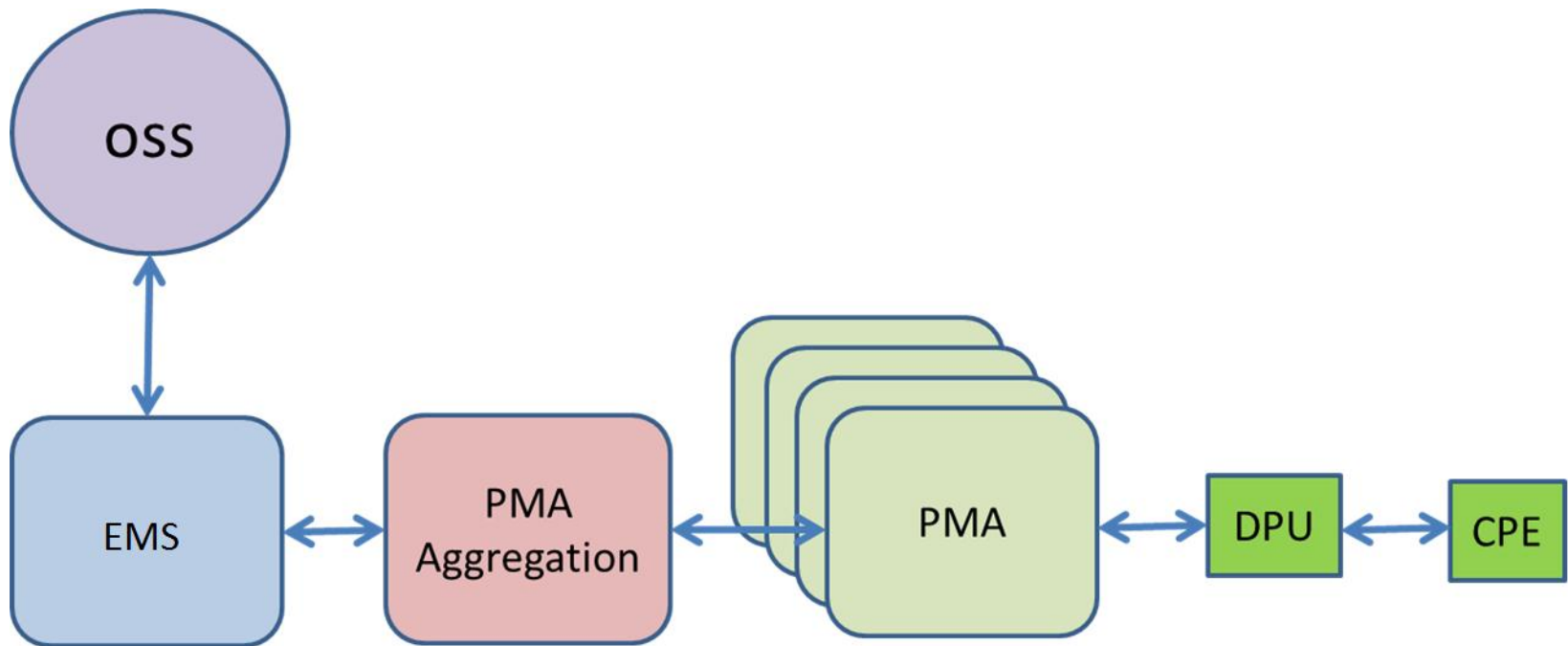
# Current Status of WT-318 in BBF

- WT-318 - Management Architecture and Requirements for FTTdp
  - Dependent upon WT-301.
  - Encompasses three backhaul types: PON, GbE, bonded VDSL2.
  - Encompasses three copper drop technologies: G.fast, VDSL2 & Copper Ethernet.
  - Introduces the concept of a Persistent Management Agent (PMA).
  - Defines a set of mandatory monitoring parameters for DPUs supporting VDSL2 interfaces.
- Good progress made at FTTdp joint session meeting 25<sup>th</sup> June 2014
  - Agreement on common management architecture for IP aware & IP unaware DPUs.
  - PMA acts as interworking point between legacy management protocols & PMA-DPU management.
  - Single data model for the DPU (excluding backhaul technology) will be defined by the BBF independent of backhaul technology.
  - DPU relay to be used to transfer the management PDUs from Layer 3 to Layer 2 for those DPUs which are IP unaware.
  - Strawman agreement that PMA-DPU management protocol should be Netconf/Yang.

# Why do you need a PMA and what is it?

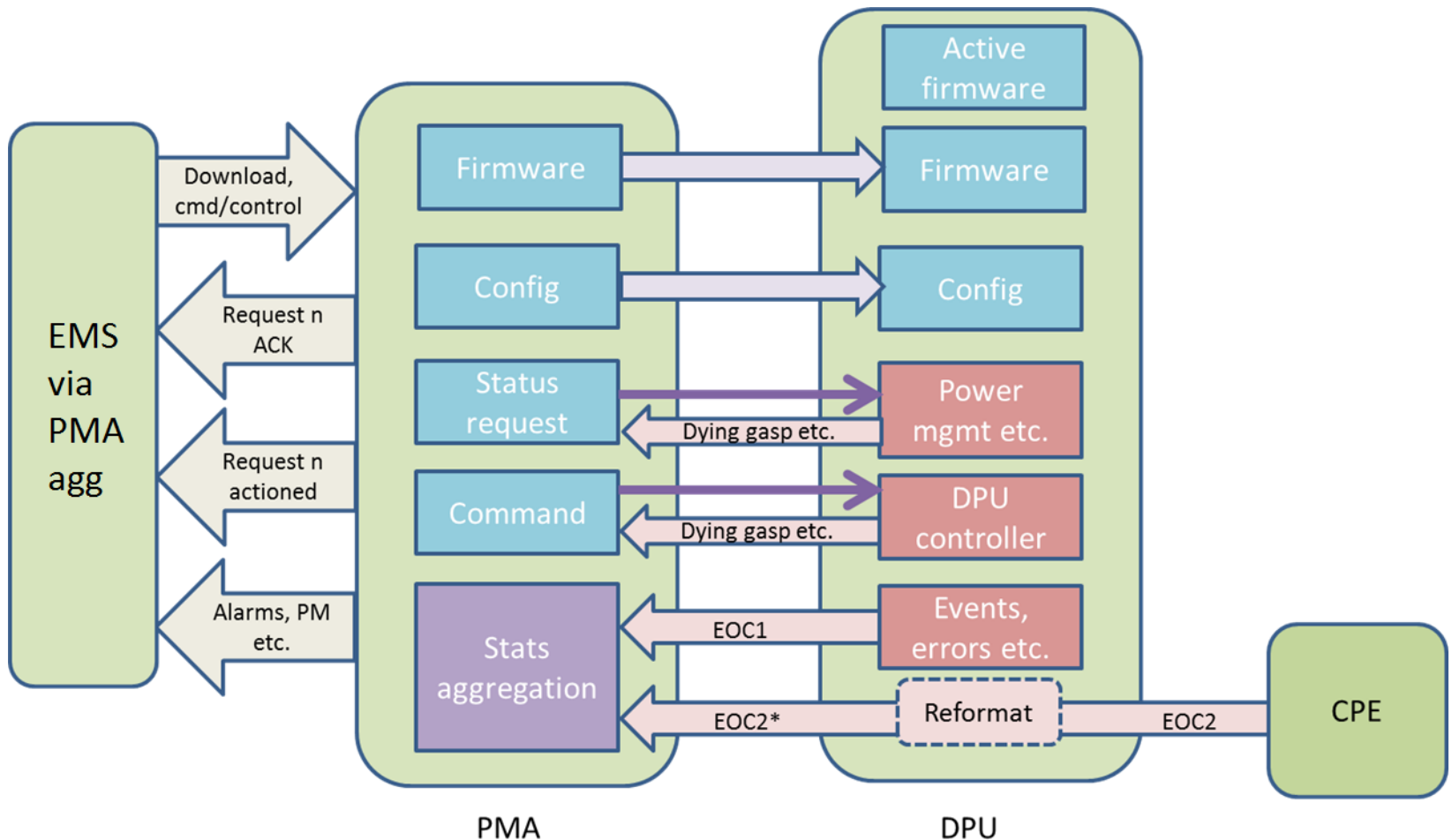
- When DPU is reverse powered and when all customers turn off their modem, the DPU will power down.
- How do you tell difference between a DPU powering down is due to customer power off, or a fault?
- How do you handle order journey/ faulting processes while DPU is off?
- How do you collect performance metrics while DPU is off?
- How do you handle profile changes while DPU is off?
- Use PMA (Persistent Management Agent).
  - PMA is located in an always powered environment and handles communication between the OSS and DPU.
  - PMA is available to store information related to configuration changes, power status changes etc. and always available to communicate with.
  - PMA automatically communicates with the DPU when it is powered up.

# Overall PMA Architecture



Note: This diagram is taken from WT-301

# Functional Components

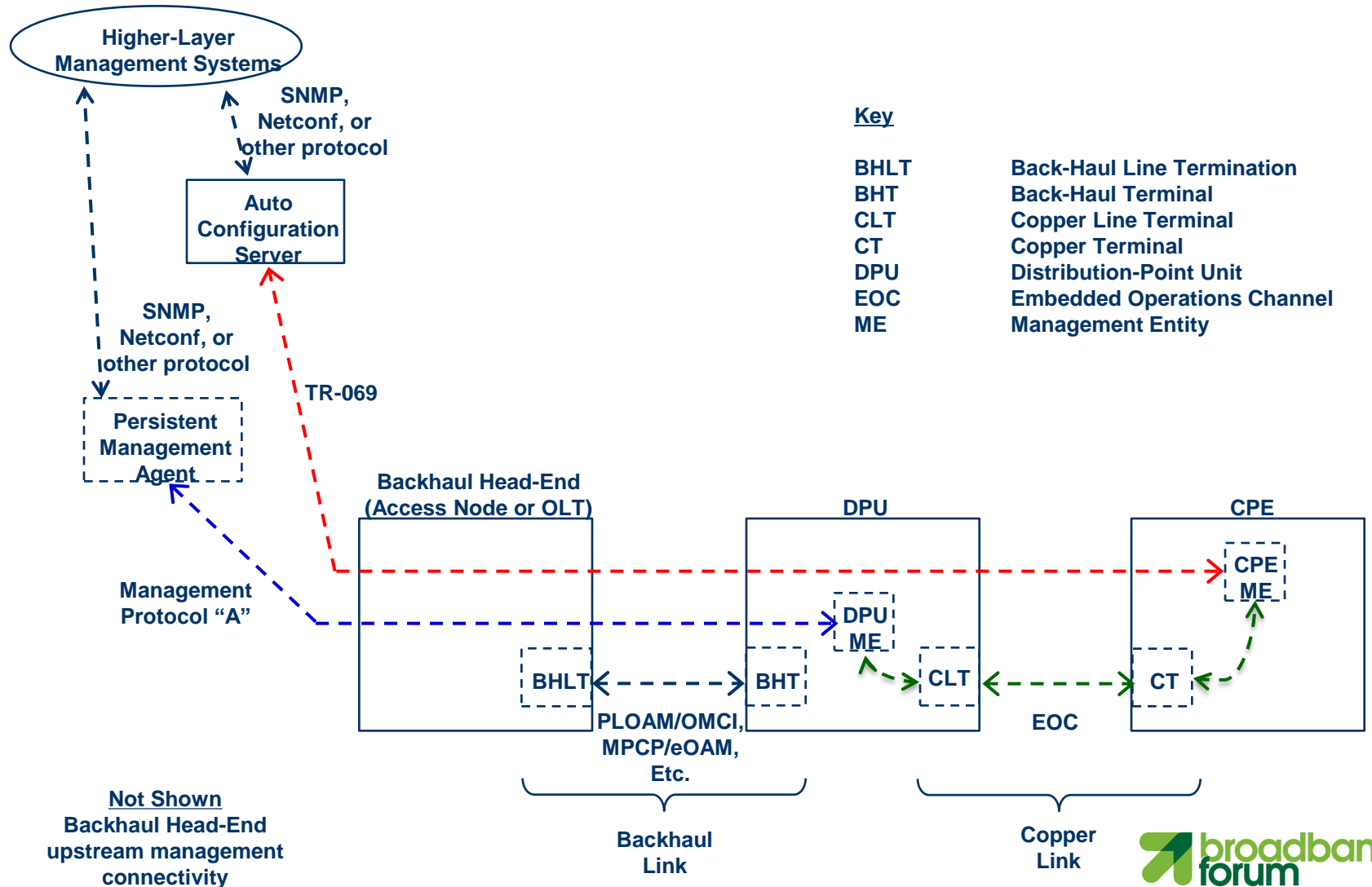


Note: This diagram is taken from WT-301  
(EOC extension may not be done)

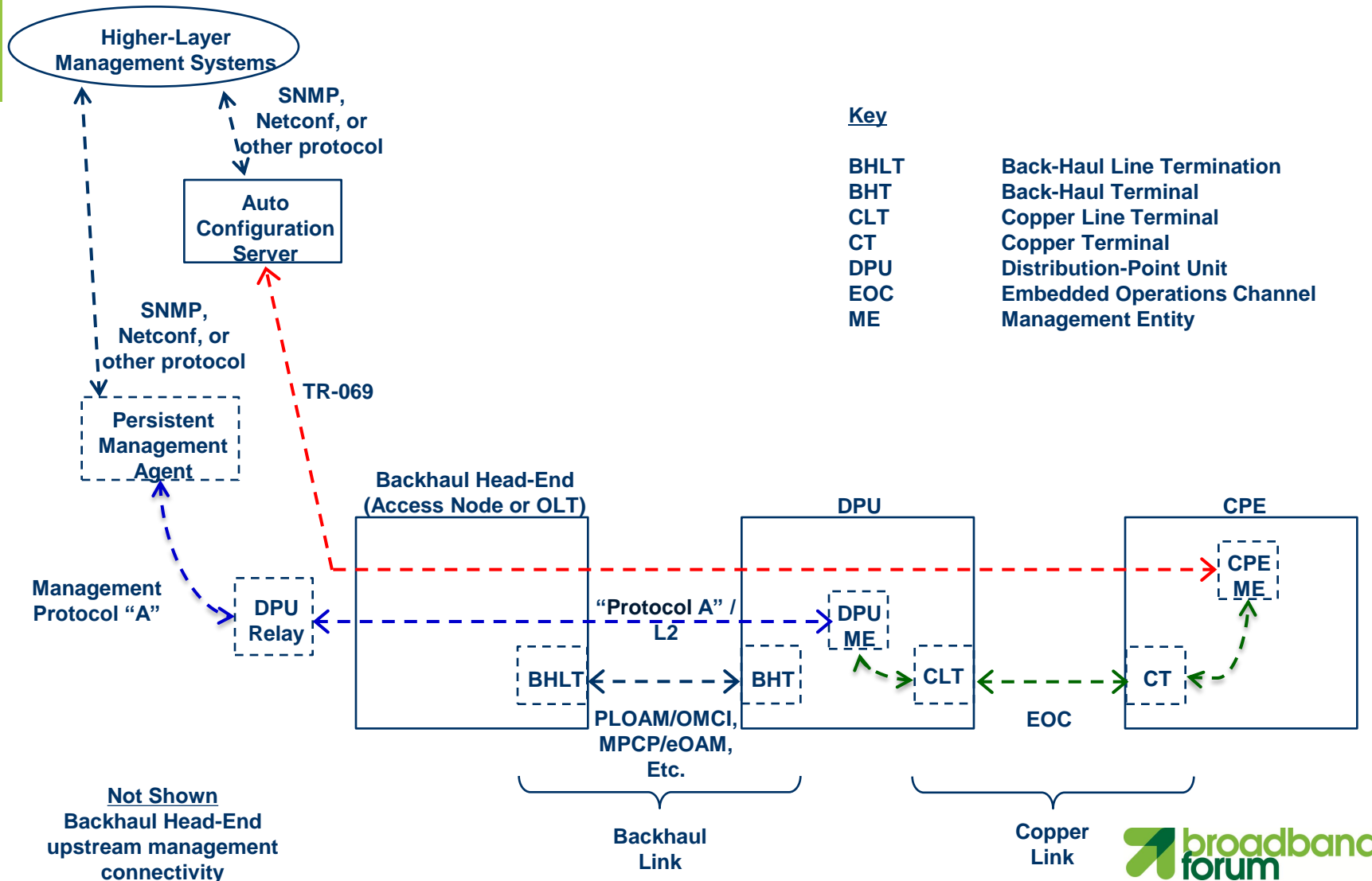
# PMA Concepts

- There is one and only one PMA per DPU, but there can be a PMA Aggregator.
- The PMA must support all OSS/NMS management actions on a given DPU irrespective of whether that DPU (or any of its lines) is powered up.
- The PMA must be able to report the current power state of its DPU, and each line, on request.
- The PMA must spontaneously report to the EMS whenever its DPU is powered down and powered up.
- The PMA must store all commands, configuration changes, firmware downloads etc. until they have been actioned and reported to the EMS, or removed by the EMS as described below.
- The PMA must action all stored tasks that have not been superseded as soon as the DPU and/or appropriate individual line are powered up.
- The PMA must change the status of stored tasks when they have been attempted to 'complete' or 'failed'.
- The PMA must report to the EMS the status of stored tasks as soon as they have been attempted.
- Successful and reported actions must result in the automatic removal of the associated stored items in the PMA.
- It must be possible for the EMS to delete specific stored tasks for a given PMA, and all such items (with a single command), irrespective of whether they have been actioned. It must also be possible for the EMS to do this for a group of PMAs.
- The PMA must be able to pass on events reported by the DPU.

# Architecture Applied to IP Aware DPU

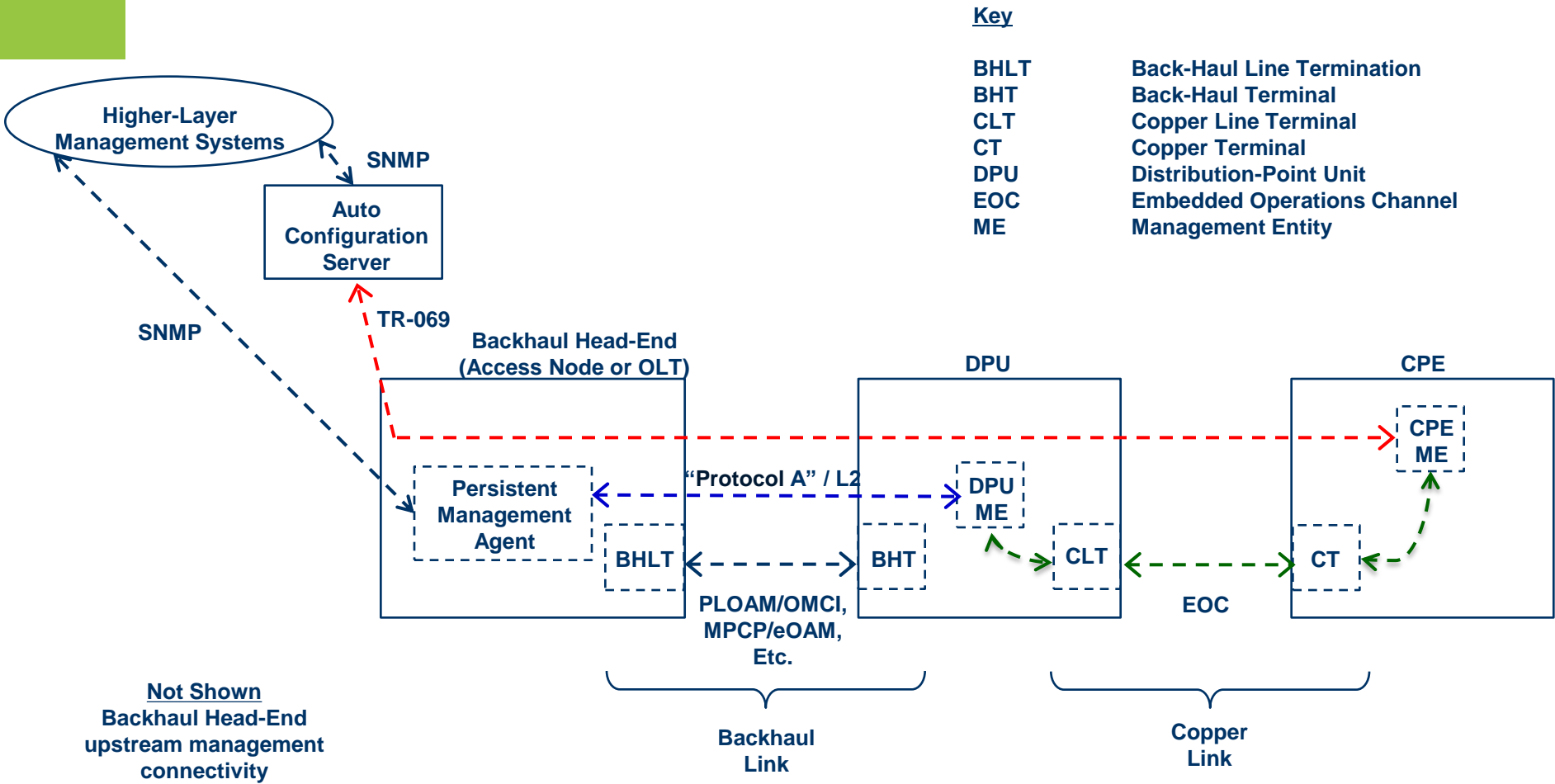


# Architecture Applied to IP Unaware DPU





# Example Low Impact Use Case



- Key
- BHLT Back-Haul Line Termination
  - BHT Back-Haul Terminal
  - CLT Copper Line Terminal
  - CT Copper Terminal
  - DPU Distribution-Point Unit
  - EOC Embedded Operations Channel
  - ME Management Entity

Not Shown  
Backhaul Head-End  
upstream management  
connectivity

# Points agreed by BBF so far ...

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- PMA required to provide capability to manage DPU that can turn off at any time.
- Single management protocol to operate between the PMA and the DPU
- Management protocol operates over IP to manage IP-aware DPUs
- Management protocol operates via a DPU relay to manage IP-unaware DPUs (DPU relay transfers management PDUs between Layers 3 and 2)
- BBF to define a single management model for the DPU (excluding the backhaul technology).

# Issues to be addressed / agreed ...

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- Management of backhaul technology.
- Definition of the DPU data model.
- Performance Metrics collection.
- Final agreement on protocol 'A' (i.e. Netconf?)