EPOC Requirements from JSCN

Xiaojun Gao - JSCN

EPOC System Requirements

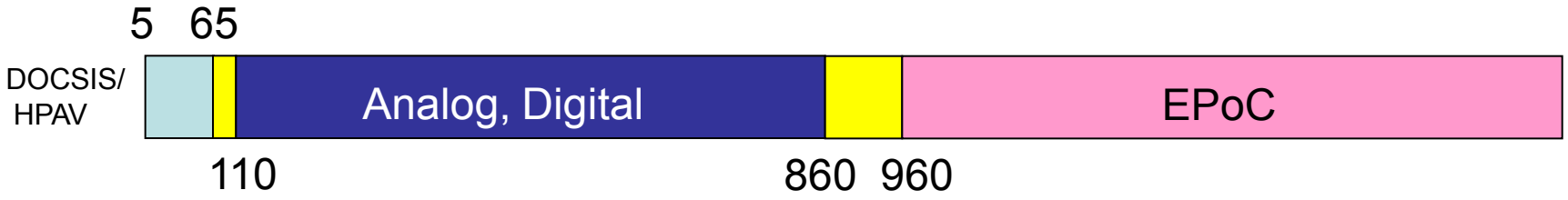
The following Requirements are for EPOC system, not limited to EPOC TF research scopes.

- Main scenarios for EPOC are N+0/N+1
  - The areas with N+2 or N+3 can achieve N+0 by fiber extension through network transformations.
- Users
  - Mainly for residential users
  - Part of business users
- Services
  - High-speed internet access
  - VOD (IPQAM and IP)
  - VOIP (Video communication)
- Data rate requirement：
  - 1 Gbps for both upstream and downstream
  - No requirements for US 1G and DS 5/10G

EPOC System Requirements

- CNUs must be unified and backward compatible regardless of different data rate and spectrum, because the cost of CNU replacement with network upgrading is very high.
  - When EPOC system upgrade to 5/10Gbps, 1G CNUs must be backward compatible.
  - While EPOC spectrum change and extension, the deployed CNUs must be backward compatible.
- Robust PHY design
  - Subcarrier adaptive modulation
  - Anti-interference design (FEC/Interleaving/Scrambling)
  - Easy for system maintenance.
- Support 4/8 QoS levels, traffic classification, PUPSPV/PUPV, 1:1/N:1 VLAN conversion, 4/8 LLIDs per CNU.
- Delay, Jitter, BER requirements refer to MEF 23.1
- EPOC system should realize end-to-end network management and QoS guarantee.
  - But don't like to be bonding with one vendor. Would prefer to buy OLT and CLT/CNU separately from different vendors.
- The desired CNU number per CLT port is 64-128, would prefer to be 128 which can lower the initial construction cost
- EPOC must support TDD

Spectrum Planning



- 5-65MHz is reserved for DOCSIS upstream or HPAV EOC
- 110-860MHz is used for legacy services (Analog TV, DVB-C, IPQAM, DOCSIS downstream）
- 860-960MHz is the isolation band and there are wireless interferences.
- Above 960MHz can be used for EPOC

The main considerations for this spectrum planning:

- co-existence and without impact on the current services
- convenient for DOCSIS/HPAV EOC deployment. DOCSIS/HPAV/EPOC can be co-existence for a period of time, and eventually be evolving to EPOC.

TDD & FDD

- We absolutely require EPOC to support TDD because TDD has following advantages
  - TDD is more flexible on UP/DN bandwidth adjustment
    - UP/DN asymmetric bandwidth services will exist for a long time, while the UP/DN bandwidth ratio also changes slowly with service development trends.
    - TDD is flexible for bandwidth adjustment between downstream and upstream
  - TDD is much easier for CNU backward compatible
    - No need to change CNUs while adjusting upstream and downstream bandwidth
    - No need to change the Analog Front End under different MSO's different spectrum planning
    - Easy for vendors to provide unified CNUs
- Compared with FDD, we think TDD is easier to be compatible with the spectrum extension and adjustment in the future.

- We need EPOC to support both FDD and TDD