Proposed skeleton of NG-EPON whitepaper

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Proposed content

1. Motivation
2. Requirements for next-gen EPON technology
3. Possible solutions of NG-EPON
4. Migration from Legacy PON systems

The activity will generate a report which will detail: (a) operators' requirements, (b) technological and economic tradeoffs of various approaches to next generation EPON, (c) the state of the art for optical subscriber access network technology, and (d) potential solutions that merit further consideration.

Motivation

- Background and Marketing driver
  - NG-EPON roadmap will gear up the construction of EPON and 10G-EPON
  - The EPON requires to ensure its evolution direction so as to bring strong confidence to the operators who has already deployed EPON network
- Service requirement for High bandwidth
  - Operator seek low cost, easy management, and competitive solution on Optical Access Network
    - High bandwidth（100M~1000M）,high splitting ratio, long distance transmission
    - Software define network consideration
  - Multi-service requirement(list use cases)
    - Residential user : accessing fascinating applications
    - Mobile backhaul/fronthaul, 3G/LTE/CPRI etc.
    - Data center interconnection?

Requirements on the NG-EPON technology

System Capacity

- OLT: 40/100 Gbit/s DS, with 10 Gbit/s US ;
- ONU: Up to 1 Gbit/s
- DS/US may be 10 : 1 to 1 : 1

Distance

- Passive: up to 40 km

Split ratio

- at least 64
- 128? 256?

Migration

- No impact to deployed ODN or with acceptable upgrade .

Coexistence

- Support coexistence with 1G-EPON and/or 10G-EPON?

Application

- Support FTTC/B/H/O
- Support EPoC/DPOE

Based on requirement of operator, derive common requirement and optional requirement

Possible solutions

- Describe possible solutions for NG-EPON for residential and Business services
  - TWDM-EPON
  - WDM-EPON
  - OFDM-EPON
  - High speed TDM-PON
  - etc..
- Mobile fronthaul/backhaul service supporting
  - PtP overlay
  - WDM-PON
  - Etc
- Comparison on possible solutions

Migration from legacy PON system

Scenarios of coexistence with 1G EPON and 10G-EPON:

Illustrate use cases of coexistence NG-EPON and Legacy EPON or GPON

Scenarios of upgrading from 1G EPON and 10G-EPON or other PON system:

- Pay as You Grow

Proposal

- NG-EPON include following sections
  1. Motivation
  2. Requirements for next-gen EPON technology
  3. Possible solutions of NG-EPON
  4. Migration from Legacy PON system

Contributions begin with Motivation and requirements first, then with the analyze of possible solutions, review the requirement would be possible.

Bringing you Closer

Thanks!