Meeting Minutes

Industry Connections NG-EPON Activities ad-hoc.

Chair called the meeting on Tue, Mar 19, 2014 at 09:13 AM.

The chair opened the meeting and introductions were made. Edwin Mallette volunteered to be recording secretary.

The chair gave brief instructions on how to access, use and sign-in to the IMAT attendance tool. Chair displayed the agenda.

Motion to approve agenda

Motion to approve the Agenda as shown.

      Move: Ed Mallette
      Second: Eugene Dai

Motion taken by voice vote >50%.

Result: Motion passed by voice vote without opposition.

The chair displayed the meeting minutes. Asked for anyone to request changes to the minutes.

Motion to approve meeting minutes

Motion to approve the meeting minutes from the January 2014 meeting.

      Move: Hesham Elbakoury
      Second: Ed Mallette

Motion taken by voice vote >50%.

Result: Motion passed by voice vote without opposition.

Chair noted the location of the reflector and web and pointed out that just recently (at Monday Mar 18th 802.3 opening plenary meeting) the meeting materials were made easier to find with a link on the 802.3 home page.

Chair called for members of the press to announce themselves, went over meeting decorum, project goals, current status, goals for this meeting. See opening presentation.

Presentation #1:

Title: Next Generation EPON Requirements and Architecture Considerations II – ODN migration Paths
Presenter: Eugene (Yuxin) Dai
Affiliation: Cox Communications

Dr. Dai presented on the paths toward NG EPON and ODN migration considerations to move to TDM PON or Hybrid WDM-TDM PON. He talked about questions of feasibility for highest TDM PON downstream - 25Gb/s or 40Gb/s and 25Gb/s upstream burst mode rate. He talked about specific challenges of power-based splitting ODN for higher speed WDM-TDM PON.

Presentation #2:

Title: Next Generation EPON Considerations of ODN, Coexistence and Transmission Speed
Presenter: Yukihiro Fujimoto
Affiliation: NTT

Mr. Fujimoto indicated that he was presenting on behalf of one of their operators. He presented on the ODN link budget, the variation between the implementation and standard power budget applications. Mr. Fujimoto indicated that current ODN configurations will be maintained for a long time. For coexistence needs, Mr. Fujimoto indicated that they had deployed 17 million lines with the 1260-1360nm upstream EPON bandwidth allocation, which makes coexistence challenging. Mr. Fujimoto pointed to Mobile backhaul application as a driver for higher speed NG-EPON access. Mr. Fujimoto indicated that they did not need coexistence between the wide EPON upstream band and future NG-EPON as NG-EPON would not likely be deployed in the same ODN as their residential services.

Recording secretary noted that the presented slides (presentation #2) were not the same as the slides on the website. Slides were updated mid-meeting.

Presentation #3:

Title: NG-EPON Coexistence scenarios and wavelength plan
Presenter: Liquan Yuan
Affiliation: ZTE

Mr. Yuan presented on the FSAN NG-PON2 wavelength band including Cons of the approach. Mr Yuan compared the coexistent requirements (e.g. EPON + 10G-EPON + NG-EPON + RF Video) to the available spectrum to come up with possible channel allocations based on those requirements.

Presentation #4:

Title: NGEPON for Future Access Network
Presenter: Naoki Agata
Affiliation: KDDI

Mr. Agata discussed the update to the mobile architecture to overlay pico cells on macro cell coverage to cope with growing mobile bandwidth demands. One of the evolutions of the radio access network (RAN) is the centralized RAN, leveraging mobile fronthaul. Mobile fronthaul requirements exceed the capability of EPON and 10G-EPON. Mr. Agata stated that coexistence with 1G-EPON (at 100nm upstream band) is necessary for the use of currently deployed ODN and ONUs. Mr. Agata also indicated that NG-EPON should support CPRI/mobile front haul requirements.

The Chair indicted that Mr. Agata had supplied an updated presentation to the one on the website, the update would be posted to the website.

Presentation #5:

Title: FSAN and ITU-T Activities on NG-PON2
Presenter: Duane Remein
Affiliation: Huawei

Mr. Remein gave an overview of the NG-PON2 standardization roadmap, the TWDM-PON Baseline architecture, wavelength plan and coexistence comparing both GPON and EPON standards, optical components in NG-PON2, and then key features in TWDM-PON such as "pay-as-you-grow" capability and spectral flexibility.

Break for lunch at 12:04. Plan to reconvene at 1:00PM.

Chair called the meeting back to order at 13:04PM.

Presentation #6:

Title: Tunable Lasers: Technologies, Cost, and Applications
Presenter: Wen Li
Affiliation: Finisar

Mr. Li discussed what's driving the need for tunable lasers and gave an overview of tunable laser technology. Mr. Li stated that the current generation of tunable products is based on Vernier Effect (slide 4) and because there's no mechanical components can integrate modulator and amplifier into a single chip.

Relative cost of tunable XFP is less than 2X the DML-based XFP. Mr Li also recommended that NG-EPON should consider other access topologies (than simple tree-and-branch.) Mr. Li believes that within one years time the Vernier effect XFPs would be available to support extended temperature range (-40C to +65C.) Temperature stability for access would probably need to be within .2C.

For burst-mode application, Vernier effect products might not be the right choice – only intended for point-to-point applications. There is no burst mode ELM driver, though it might be no problem, they've never tested it.

Presentation #7:

Title: Tunable Optics Technologies and relative cost trends
Presenter: Duane Remein
Affiliation: Huawei

Mr. Remein discussed DFB and DBR lasers, pointing out specific differences in tuning range between the two. DBR relative cost is ~1.3X thermal tuning DFB. Mr. Remein also covered optical tuning filters indicating that relatively the faster tuning optical filters were in general more costly.

Mr. Remein indicated that as far as he knew all lasers in the presentation were capable of burst mode but that he would ask the original author to clarify.

Presentation #8:

Title: OFDM Technology in Optical Access Network
Presenter: Duane Remein
Affiliation: Huawei

Mr. Remein described the Accordance architecture – OFDM-PON; discussed some details of the OFDM-based access network, noting that optical budget is problematic in OFDM-based PON system; and lastly called out some of the major challenges of OFDM-PON.

Mr. Remein referred some questioners to the white paper on NG-PON2:
A single-band OFDM-TDMA PON baseline architecture defined in Clause 1.1, NG-PON2 White Paper Contribution: OFDM-PON Architecture and Technology -2011.
He also suggested that the ad-hoc might wish to send a communiqué to FSAN to request the white paper.

The chair stated that if the white paper is not publicly available, we should first attempt to obtain it via informal channels. The chair also suggested that additional information about using OFDM for PON would be nice to see.

Presentation #9:

Title: Proposed Outline of the report from the activity
Presenter: Duane Remein
Affiliation: Huawei

Mr. Remein presented on a proposed outline detailing Chapter 1: operator requirements, Chapter 2: NG-EPON general information on potential candidate technologies, and Chapter 3: detailed technical information on each candidate technology.

Chair indicated that he appreciated contributions to guide the editors' work but that he intended to feed the contributions to the editors to improve the draft, but the process is somewhat informal at this time.

Presentation #10:

Title: Proposed skeleton of NG-EPON whitepaper
Presenter: Liquan Yuan
Affiliation: ZTE

Mr. Yuan proposed an outline to include Motivation – the background and marketing driver, service requirements for high bandwidth; requirements for NG-EPON technology – system capacity, ODN distance, ODN splits, coexistence, migration, and application support; possible solutions for NG-EPON, a comparison of the possible solutions, and specific application supports like mobile fronthaul and backhaul; and migration from legacy PON systems – coexistence and pay-as-you-grow features.

Mr. Yuan suggested the ad hoc should derive common requirements and optional requirements from operator discussions.

Chair indicated that he was requested to provide an update of NG-EPON ad-hoc activities to IC-COM. Asked the group if we wanted to proceed with the final contribution or review the status update to IC-COM document. The consensus in the room was to continue with the next item on the agenda (presentation #11) and review the status update to IC-COM later in the meeting.

Contribution #11:

Title: Draft of the report
Presenter: Howard Frazier
Affiliation: Broadcom

The chair displayed the contribution of the draft report.

Mr. Mallette suggested taking the two "outline" contributions from Mr. Yuan and Mr. Remein and essentially sum them up into a single outline contribution.

Meeting break at 15:30PM. Meeting called back to order at 16:00PM.

During break the chair crafted an outline from the combination of the draft report, the contribution regarding outline proposals from Mr. Yuan and Mr. Remein into a single outline proposal. Post additional editing, the chair proposed a motion to accept the work product.

Motion #1

Adopt the outline described in the file ngepon_report_proposed_outline_0314.pdf as the basis for further work.

    Move: Ed Mallette
    Second: Bill Powell

Technical Motion ≥ 75%

    Y: 12
    N: 0
    A: 0

Result: Motion passes 12/0/0.

The NG-EPON Industry Connections ad-hoc group acknowledges and appreciates the work of the editors to date.

The chair presented the NG-EPON status report for review.

The chair opened the discussion on the plans for next meeting..
Plans for the next meeting:
- ➢ Ask for a one day meeting at May interim.
- ➢ No overlap with EPoC.
- ➢ Request contributions on the following topics
  - o Modulation techniques for optical access networks
  - o Market potential
  - o Operator requirements
  - o Coexistence requirement
  - o Blocking filter characteristics
  - o High speed TDM PON feasibility

Straw Poll
(Norfolk May Meeting Attendance)

- ➢ I will attend the meeting in May: 6
- ➢ I may attend the meeting in May: 4
- ➢ I may not attend the meeting in May: 0
- ➢ I will not attend the meeting in May: 0

Motion to Adjourn

Motion to adjourn.

     Move: Bill Powell
     Second: Ed Mallette

Meeting adjourned at 16:41PM on 19-Mar-2014.

Lastname	Firstname	Affiliation	Tue
Agata	Naoki	KDDI R&D Labs	X
Chang	Xin	Huawei	X
Dai	Eugene	Cox	X
ElBakoury	Hesham	Huawei	X
Frazier	Howard	Broadcom	X
Fu	Zhiming	ZTE Corp	X
Fujimoto	Yukihiro	NTT	X
Gong	Zhigang	D-Net	X
Hammond	Bernie	TE Connectivity	X
Hirth	Ryan	Broadcom	X
Kim	Soo	IEEE-SA	X
Knittle	Curtis	CableLabs	X
Li	Rick	Cortina Systems	X
Li	Shengping	Huawei	X
Li	Wen	Finisar	X
Mallette	Edwin	Bright House Networks	X
Newman	Adam	IEEE-SA	X
Powell	Bill	Alcatel-Lucent	X
Remein	Duane	Huawei	X
Tajima	Akio	NEC	X
To	Leonard	Pulse	X
Yu	Zu	Huawei	X
Yaun	Liquan	ZTE Corp	X