IEEE 802.1/IEEE 802.3
ITU-T Study Group 15 Workshop
Takeaways

Workshop Agenda

- Session 1 - Evolving Beyond 400G

- Session 2 - Ethernet Optical Access Technology

- Session 3 - 5G Mobile Transport

- Session 4 - YANG and Data Modelling

Session 1: Evolving Beyond 400G

Takeaways and Conclusions

- In order to meet future demands of beyond 400 Gb/s speeds it will be necessary to investigate potential improvements of optical fiber specifications to minimize technical restrictions to achieve those higher speeds at lowest cost.

- It is recognized that there are significant challenges for IEEE 802.3 and ITU-T SG15 groups to consider rates beyond 400 Gb/s, balancing market needs (potentially requiring 1.6 Tb/s) and technical possibilities (potentially limiting next speed to 800 Gb/s). Defining the next rate will require consideration of broad market potential, technical feasibility, and economic feasibility.

Suggestions

- New high-speed interfaces may require tighter SMF dispersion specifications than in-force version of G.652.D. Recommend ITU-T Q5/15 to investigate opportunities to achieve this.

- IEEE 802.3 and ITU-T SG15 should identify potential solutions related to implementation and transport of beyond 400 Gb/s Ethernet that have broad market potential, technical and economic feasibility. IEEE 802.3 and ITU-T SG15 should stay in close contact to align plans for creating Ethernet and Transport specifications for beyond 400 Gb/s applications

Session 2 – Ethernet optical access technology takeaways

- *ITU-T Q2/15 Optical Access work summary* : Q2/15 continues its work on many PON technologies, including OMCI, Cooperative DBA (important for Fx fronthaul over PON), 50G-PON (seen by many as the next step after 10G-PON), and Bidirectional optics (useful for many applications).

- *IEEE 802.3 Access projects summary, and the use of fiber loss statistics* : 802.3 has access projects on 50G-EPON (nearly done), Bidirectional optical access PHYs (in D1.2), and SuperPON (selecting baselines). For longer reach systems, statistical loss budgeting is useful

- *NG PON & 5G : Several operators have interest in an ITU 25G-PON to be used for 5G wireless Fx fronthaul, F1 midhaul, and other business applications. This system enables statistical multiplexing for higher efficiency & earlier 5G densification.*

- *WDM PON & 5G wireless* : WDM-PON has some utility for 5G wireless Fx fronthaul (important for Eastern operators), and not for F1 fronthaul (important for Western operators)

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Session 3 - 5G Mobile Transport Summary

- Takeaways and Conclusions
  - ITU-T Q13/15 and Q11/15 are enhancing synchronization and transport for 5G. Interworking of sync solutions between different industries as an important aspect to be addressed.
  - IEEE 802.3 is improving Ethernet PTP timestamping accuracy for complex PHYs
  - IEEE 802.1 TSN includes tools to provide TDM over packet network in a flexible way and the toolbox continues to be developed
  - TSN for Fronthaul profile describes the use of TSN as a component of 5G
  - Integration of 5G and TSN for industrial automation is ongoing

- Suggestions
  - Increase inter-SDO cooperation and collaboration to fully leverage 802.1 TSN
  - Recommend ITU-T SG15 communicate with IEEE 802.1 TSN TG on 5G transport
  - Develop 5G synchronization solutions further via cooperation of 3GPP, ITU-T Q13/15 and P802.3cx
  - Make sure that TSN profiles address 5G and supported 5G verticals

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Session 4 – YANG and Data Modeling Outcomes

- Information Exchange between ITU-T Q14/15, IEEE 1588, IEEE 802.1, and IEEE 802.3
- Explanation of working methods of the ITU-T related to use of tools and information modeling and tooling to produce YANG data models
- Understanding of IEEE YANG for Connectivity Fault Management
- Understanding of the work to link the IEEE CFM YANG with the ITU-T Performance Monitoring YANG
- Introduction to the Protection related YANG progressing in the ITU-T
- Engagement with IEEE 1588 and leverage YANG coordination and collaboration