Response to comments on IEEE P802.3bn PAR & 5 Criteria

IEEE802.3 EPoC PHY Study Group
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Study Group vote

- The responses shown on the following slides were adopted by the Study Group at 4:00 pm on Wednesday, 7/18, by a vote of 46-0-0.

Comments from Jon Rosdahl

- 8.1 please add an item number reference for the statement for which the acronym definition is being given.
- The title in the 5C seemed a bit different than the PAR title. Should it be Coax or Coax Networks?
- The 5c does not actually reference the PAR.
- In the 5C – Economic Feasibility:
  - What is OLT and CNU?
- The 5C that was used is not the currently approved set of 5Cs that are required by 802 EC OM (see 11.5.2). Please update and respond accordingly.

Response

- Delete the current explanatory note under 8.1
- Delete the last word (Networks) from the PAR title.
- Expand acronyms OLT and CNU in the Economic Feasibility response
- Use the Compatibility criterion as recorded in 802 EC OM 11.5.2, and add the following statement to the response:
  - The PAR for P802.3bn mandates that the amendment shall comply with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q.
- Add a statement to the PAR, under 8.1 Additional Explanatory Notes:
  - Item 5.2.b: The amendment will comply with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q.

Comment from Paul Nikolich

I am in support of this proposed project, however, I have some concerns. In my opinion, the scope of the project is quite broad (e.g., lack of operating frequency limits, lack of distance limits, symmetric and/or asymmetric operation, etc.). Projects with a broad scope tend to take longer to complete than ones with a narrow scope—placing the projected completion date of 08/2014 in jeopardy. I don't presume to have any greater insight as to what an appropriate scope or duration for this project should be—unquestioningly; the WG members are the experts in this regard. Never-the-less, I would like to ask if the WG at least considered opportunities to narrow the scope and potentially reduce the development time, and what was the rationale for settling on the current scope?

Response

- The IEEE 802.3 Working Group uses a set of project objectives to specifically define the scope of a given amendment project. These detailed objectives are maintained and continuously monitored by the working group throughout the life of a project. The set of project objectives for P802.3bn is recorded here:
- http://www.ieee802.org/3/epoc/EPoC_objectives_draft_0516.pdf

Revised 5 Criteria responses

- The responses to the Broad Market Potential, Compatibility, and Economic Feasibility have been modified
  - Changes identified with underscore font
- The responses to the Distinct Identity and Technical Feasibility criteria have not been modified

Broad Market Potential

I. Broad sets of applicability

II. Multiple vendors and numerous users

III. Balanced costs (LAN versus attached stations)

- Given the success of Data-Over-Cable Service Interface Specifications (DOCSIS®)-based services, service providers are looking for cost-effective, high performance means to provide higher data capacity, addressing their CapEx and OpEx, growing market competition and future-proofing their existing coaxial plant, while expanding service portfolios for business and residential customers.
- Service providers have seen unabated growth in both offered capacity and consumption of broadband IP services over the course of 15 years for residential, and recently, business services
- The proposed project would result in a new PHY with the widest possible applicability
- Interest and support from a worldwide array of operators, system vendors, optical and RF component manufacturers, and silicon suppliers has already been demonstrated at CFI and SG stages
- The proposed project will result in the use of the existing EPON architecture by extending its capabilities to support point-to-multipoint RF distribution plants comprised of either amplified or passive coaxial media.
- This approach will allow the project to optimize the cost balance between the network infrastructure components and attached stations in the cable network.

Compatibility

IEEE 802 LMSC defines a family of standards. All standards should be in conformance : IEEE Std 802, IEEE 802.1D, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 Working Group. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions.

a) Does the PAR mandate that the standard shall comply with IEEE Std 802, IEEE Std 802.1D and IEEE Std 802.1Q?

b) If not, how will the Working Group ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 Working Group

I. Compatibility with IEEE Std 802.3

II. Conformance with the IEEE Std 802.3 MAC

III. Managed object definitions compatible with SNMP

- As an amendment to current IEEE Std 802.3, the proposed project will remain in conformance with the IEEE 802 Overview and Architecture, as well as the bridging standards IEEE Std 802.1D and IEEE Std 802.1Q.
- The PAR for P802.3bn mandates that the amendment shall comply with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q.
- Moreover, the proposed project will build on 1G-EPON and 10G-EPON architecture, extending coverage of Multi Point Control Protocol (MPCP) to amplified and passive coaxial media.
- The proposed amendment will conform to the full-duplex operating mode of the IEEE 802.3 MAC, as defined in Annex 4A.
- The EPON Protocol over Coax (EPoC) PHY amendment will reuse the MAC Control and OAM as defined in the current IEEE Std 802.3 for EPON, with minimal augmentation if necessary, while developing new PHY specifications.
- The project will include a protocol independent specification of managed objects with SNMP management capability to be provided in the future by an amendment or revision to IEEE Std 802.3.1.

Economic Feasibility

I. Known cost factors, reliable data

II. Reasonable cost for performance

III. Consideration of installation costs

- The cost factors for EPON components and systems are well known and there is a broad and healthy industry ecosystem associated with these technologies.
- EPoC components are expected to be similar to those used in EPON, and Coax Network Units (CNUs) developed for RF networks should have comparable cost structure as EPON Optical Network Units (ONUs)
- The proposed project might introduce new cost factors which can be quantified and accounted for during the course of the project.
- EPON has been established as an attractive access technology in terms of cost/performance.
- This project is intended to bring these benefits to RF distribution plants comprised of either amplified or passive coaxial media.
- EPoC is expected to follow the same cost/performance trend line, established for all major Ethernet technologies developed by 802.3 in the past.
- Installation, maintenance and operations costs for the new technology are expected to be similar to those of DOCSIS equipment.
  - Optical Line Terminal (OLT) installation costs should be comparable to the DOCSIS Cable Modem Termination System (CMTS)
  - CNU installation costs should be comparable to the cable modem
  - New optical-to-RF equipment installation costs should be comparable to other hybrid fiber-coax amplifier or node installation costs