Next Generation Ethernet Passive Optical Network (NG-EPON)

Industry Connections Activity Initiation Document (ICAID)

Version: 1.94, 14 November 2013

Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE-SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Howard Frazier
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Phone: +1.408.922.8164
Employer: Broadcom Corporation
Affiliation: Broadcom Corporation

2. Type of Activity

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Individual-Based

3. Purpose

3.1. Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

IEEE Std 802.3-2012 includes specifications for the Data Link and Physical layers for Ethernet Passive Optical Networks (EPON) operating at 1 Gb/s (1G-EPON) and 10 Gb/s (10G-EPON). There is a need to explore the market potential and technology options for a next generation of EPON, operating at data rates beyond 10 Gb/s. To do so, the group will raise awareness in the industry and seek input regarding the desired features and options for a next generation of EPON.

3.2. Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

The IEEE 802.3 Ethernet Working Group has recently completed an amendment to IEEE Std 802.3-2012 to provide extended optical power budgets for 1G-EPON and 10G-EPON (IEEE Std 802.3bk-2013), and is in the process of developing an amendment to support the operation of EPON protocols over coaxial cable networks (IEEE P802.3bn). The IEEE 802.3 Working Group has not yet begun any work on the definition of a next generation EPON.

The IEEE 1904.1 Standard for Service Interoperability in EPON (SIEPON) Working Group has completed a standard that builds upon the IEEE Std 802.3-2012 1G-EPON and 10G-EPON Physical layer and Data Link layer standards and creates a system-level and network-level specification allowing full “plug-and-play” interoperability of the transport, service, and control planes in a multi-vendor environment. The IEEE 1904.1 Working Group is also working on a complete set of conformance test procedures for its base standard. Defining new Data Link and Physical layer standards for EPON is not within the charter of the IEEE 1904.1 Working Group.

Prompted by work done in the Full Service Access Network Group (FSAN, an industry association), ITU-T Q2/SG15 is developing a series of recommendations describing a PON system with a capacity of 40 Gb/s or higher on a single optical distribution network. This new system is referred to as NG-PON2, and when complete will be published in the ITU-T G.989 series of recommendations. The G.989 recommendations are expected for consent in 2014.

3.3. Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

Several distinct markets and applications currently rely on EPON. The largest application areas for EPON include residential and commercial subscriber access (for

voice, video and data), and mobile backhaul, offered in triple- and quad-play packages. The largest geographical areas of EPON deployments can be found today in Asia and the Americas. Equipment vendors and Operators serving all of these markets are interested in exploring the technologies available for the next generation of EPON, allowing them to provide cost-effective solutions to the ever-increasing bandwidth demand of the end-customers, as well as addressing the requirements of customer applications.

4. Estimated Timeframe

Indicate approximately how long you expect this activity might take to achieve its proposed results (e.g., number of weeks/months/years). Also indicate when you expect this activity to be reviewed by ICCom for completion or possible extension (maximum two years).

Two years
Expected Completion/Review Date: 12/2015

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents, proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

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.

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICCom.

None anticipated.

7. Management and Procedures

7.1. IEEE Sponsoring Committee

Indicate whether an IEEE sponsoring committee of some form (e.g., an IEEE Standards Sponsor) has agreed to oversee this activity and its procedures.

Has an IEEE sponsoring committee agreed to oversee this activity?: Plan to seek sponsorship from the IEEE 802 LAN/MAN Standards Committee (C/LM).

If yes, indicate the sponsoring committee's name and its chair's contact information, and skip the remaining parts of this section (skip 7.2 and 7.3, below).

Sponsoring Committee Name: IEEE 802 LAN/MAN Standards Committee
Chair's Name: Paul Nikolich
Chair's Email Address: p.nikolich@ieee.org
Chair's Phone: +1.857.205.0050

Working Group: Ethernet Working Group (C/LM/WG802.3)
Contact Information for Working Group Chair
Name: David Law
Email Address: david_law@ieee.org
Phone: +44 131 665 7264
Contact Information for Working Group Vice-Chair
Name: Adam Healey
Email Address: Adam.Healey@LSI.COM
Phone: +1.610.712.3508

7.2. Activity Management

If no IEEE sponsoring committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

7.3. Procedures

If no IEEE sponsoring committee has been identified in 7.1 above, indicate what documented procedures will be used to guide the initial operations of this activity (e.g., the *Industry Connections Activity Baseline Procedures*).

8. Participants

8.1. Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

Individuals from component suppliers (ICs, optical transceivers, fiber optic cabling), equipment suppliers (routers, switches, head-end and customer premises), network operators (Multi-Service Operators) and telecommunications companies, as well as individuals from academic and research facilities. Based on experience in the IEEE 802.3 and IEEE 1904.1 Working Groups, we expect world-wide participation.

8.2. Expected Number of Participants

Indicate the approximate number of entities or individuals expected to be actively involved in this activity.

35 individuals

8.3. Initial Participants

Provide a list of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an individual-based activity:

Individual	Contact Information	Employer	Affiliation
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