Proposed Project P1904.1:
Standard for Service Interoperability in Ethernet Passive Optical Networks

Overview for IEEE 802.3 Working Group

Why Is SIEPON Necessary?

▶ **SIEPON? – Service Interoperability in Ethernet Passive Optical Networks**

▶ The convergence of communications, computing, and entertainment is happening faster than anticipated. <u>Network operators are becoming service providers.</u>

▶ To successfully <u>provide</u>, <u>manage</u>, and <u>scale</u> services, network operators must ensure that the deployed EPON devices implement necessary features and interoperate in the following areas:

   ◦ EPON Provisioning and QoS support of multiple services

   ◦ EPON Configuration and control of point-to-multipoint connectivity

   ◦ EPON Service Protection and Restoration

   ◦ EPON Device and service management

View on Higher-Layer Features

▸ The IEEE 802.3ah and 802.3av specifications enable various EPON system-level features or functions, but do not provide formal specification for some features, treating them as out-of-scope. Examples include:

◦ Exact DBA mechanism

◦ Software/Firmware download

◦ Service and device management

◦ System-level power-saving mechanisms

◦ Service protection and restoration mechanisms

▸ P1904.1 seeks to address these features.

Scope of the P1904.1 Project

▸ The proposed standard will describe the system-level requirements needed to ensure service-level, multi-vendor interoperability of Ethernet Passive Optical Network (EPON) equipment. The specifications developed in the course of this project will complement the existing IEEE Std. 802.3 and IEEE Std. 802.1 standards which ensure the interoperability at the Physical layer and Data Link layer. Specifically included in the proposed work are:

1. EPON system-level interoperability specifications covering equipment functionality, traffic engineering, and service-level QoS/CoS mechanisms.

2. Management specifications covering: equipment management, service management, and power utilization.

IEEE 802.3 Plenary Meeting, Atlanta, GA   11–16–2009

Examples of In-Scope Features

- **Multi-service QoS mechanisms**
  - SLA and service provisioning
  - Dynamic bandwidth allocation
  - Service scheduling at the OLT
  - Service scheduling at the ONU

- **Configuration and control of point-to-multipoint connectivity**

- **System monitoring and diagnostics**
  - Device monitoring and diagnostics
  - Fault detection and isolation

- **Service Protection and Restoration**
  - Optical link protection switching function
  - Equipment redundancy and dual homing
  - Configuration recovery function

- **Power utilization modes**

- **Software/firmware updates**

- **Device and service management for all the above features**

Liaison with IEEE 802
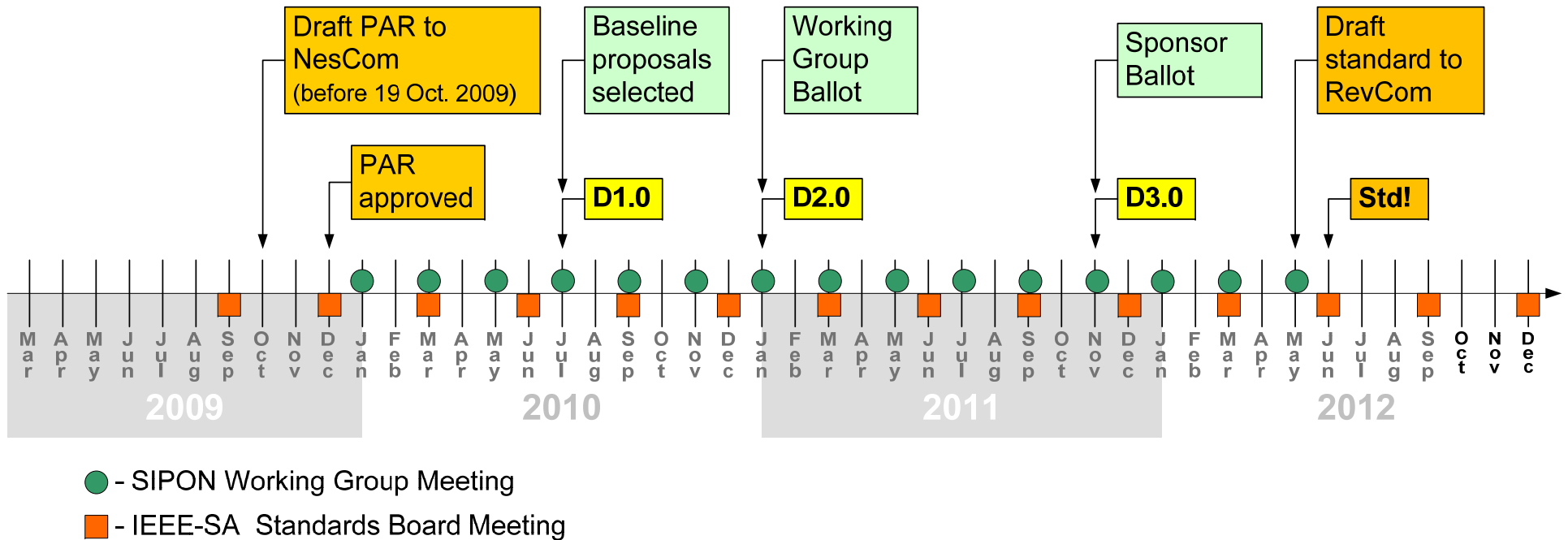
- This project is sponsored by IEEE Communications Society
- The system-level functions proposed for standardization match the focus of several ComSoc's Technical Committees:
  - Transmission, Access, & Optical Systems
  - Network Operations & Management
  - Multimedia Communications

- The SIEPON project will develop close ties with the 802.3 and 802.1 Working Groups. This project…
  - Will ask to establish liaisons with the 802.3 and 802.1 Working Groups.
  - Will not redefine or modify the PHY and Data Link layers defined by IEEE Std. 802.3 and IEEE Std. 802.1
  - Will not use the 802.3 and 802.1 specifications in ways not intended by respective Working Groups.

Companies Supporting P1904.1

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Tentative Schedule

| Draft PAR to NesCom (before 19 Oct. 2009) | Baseline proposals selected | Working Group Ballot | | Sponsor Ballot | Draft standard to RevCom |

| PAR approved | D1.0 | D2.0 | D3.0 | Std! |

| | 2009 | | | | | | | 2010 | | | | | | | 2011 | | | | | | | 2012 |

Months: Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

● – SIPON Working Group Meeting

■ – IEEE-SA Standards Board Meeting

▸ Schedule is tentative, subject to confirmation by the Working Group