IEEE P1904.1 SIEPON Scope and Structure

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The scope of SIEPON

- **SIEPON – Service Interoperability in Ethernet Passive Optical Networks**

- The target of SIEPON is to develop the ecosystem based on the IEEE802.3 EPON and 10GEPON systems
- IEEE802.3 defines the PHY L1 and MAC L2, as traditionally done for Ethernet equipment
- SIEPON completes the system aspects of the solutions that are required for carrier grade, optical access equipment
  - SIEPON unifies the multiple, national based systems, existing in the market
  - SIEPON develops a consistent and unified framework for treating:
    - multiple service models
    - multiple provisioning and management models
    - multiple deployment scenarios
EPON is the market-leading optical access technology

Support a diverse suite of business and residential services

- IPTV, VoIP, data and cellular backhaul

Large-scale deployments in Japan, China, Korea, and MSOs, soon reaching 100M subscribers

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**The structure of SIEPON**

SIEPON ensures end to end **interoperability** in the EPON

- SIEPON defines a flexible architecture that can serve multiple operators with EPON deployment
  - Contain and align multiple vendors in the supply chain
- Coordinate the different SDOs dealing with the PON optical access
- Coordinates and develops a conformance and certification program

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SIEPON - P1904.1

SIEPON was founded in 2009 by IEEE SA and ComSoc

Entity based project – Entity must be IEEE Corporate member for participating

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# P1904.1 structure and staff

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SIEPON Spec is mature
- Currently in Sponsor Ballot - Draft 3.0 is rolling
- The spec is divided into 3 packages driven by main Carriers deploying EPON
- Focus starts to be on conformance
  - Creating baselines for all test suites
- ICAP started a conformance program

SIEPON spec defines for the ONU and OLT the process flows, state diagrams and frame formats defined for each feature
- An extensive set of Protocol Implementation Conformance Statements (PICS) enables to confirm unambiguously that product behavior complies with the requirements
- SIEPON develops test suits that matches the PICs
SIEPON timeline

Draft PAR to NesCom (before 19 Oct. 2009)
PAR approved
D1.0 Baseline proposals selected
D2.0 WG Ballot
D3.0 Sponsor Ballot
Draft standard to RevCom
Std!

2009
2010
2011
2012
2013

- SIPON Working Group Meeting
- IEEE-SA Standards Board Meeting

August 21-23, 2012
IEEE P1904.1 WG Meeting, Sapporo, Japan

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What’s in the SIEPON Specifications

- **Service configuration and provisioning**
  - Features for connectivity, like frame classification and manipulation, forwarding rules
  - A unified data path model describing VLAN modes, tunneling modes and multicast modes

- **Performance requirements and service quality**
  - Features for service performance, including real-time control of delay, jitter, packet loss, and bandwidth guarantees

- **Service Survivability**
  - Features for service availability, including definition of monitoring mechanisms, system alarms, path protection and power saving methods

- **System/device maintenance and management**
  - Features for operating EPON as a managed, secure, public network, including device and port authentication, software management, and device-capability discovery.
Services in SIEPON

Figure 3. Illustration of multiple ESPs in the MAC Client.
Powersave for EPON

Figure 10-1—Timing diagram of a power saving cycle
Line protection

Figure 9-9—Trunk protection with redundant C-OLT.
Figure 9-13—Tree protection with redundant C-OLT
SIEPON management

OLT

IEEE Std 802.3, 64.3.3 / 77.3.3
Discovery and registration process

IEEE Std 802.3, 57.3.2.1
OAM Discovery process

eOAM Discovery process

eOAM Management

ONU

SIEPON Management

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Conclusions

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