Fiber Access Networks

Mission Statement:

To define the requirements and data models for deploying Broadband Forum network architectures in fiber access technologies so as to accelerate deployments and ensuring interoperability.

Work Area Directors: Marta Seda, Calix; Samuel Chen, Broadcom

Business Impact:

This Work Area’s focus along with the Physical Layer Transmission area is on both cost savings and acceleration of time to market. Standardized interoperability and certification create a trusted base of equipment and services without which significant investments in time and resources can cause years of delay and in-service failures that impact revenue and credibility. Interoperability provides invaluable intelligence as feedback to both developers and implementers of new products and services. As the move to virtualized devices with non-deterministic functions and performance becomes a reality, the need for interoperability testing, data models, and reference configurations will become critical.

Scope:

The FAN Work Area has the following main areas of responsibility:

- Specification of PON related requirements. These projects include:
  - Architecture & Technical Requirements for PON-based Mobile Backhaul networks
  - Multi-wavelength PON Inter-Channel-Termination Protocol Specification
  - Multi-service Broadband Network Architecture and Nodal Requirements in the context of PON
- Specification of PON NETCONF/YANG data models, test plans and certification for the defined YANG modules
- Specification of PON test suites used to verify the interoperability of the fiber access specific portions of the network. These projects include:
  - GPON & XG-PON1 ONU Conformance Test Plan
  - XGS-PON TC Layer Test Plan
  - NGPON2 Test Plan
  - PMD Layer Test Plan.

To find contributions, please search in JIRA:

1. Click here to access the Jira CONTRIB project.
2. Click the "More" drop-down menu filter.
3. Select "BBF Project".
4. In the new “BBF Project:" menu filter that pops up, type the project number including prefix, e.g., "WT-385", "ID-247", etc.

Project Streams

<table>
<thead>
<tr>
<th>Project Stream</th>
<th>Description</th>
<th>PS Leadership</th>
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</table>

Fiber Access Networks Work Area Email List

memgen@broadband-forum.org

- List for all BBF Members to receive general information

fan@broadband-forum.org

- List for BBF Fiber Access Networks WA

wt385@broadband-forum.org

- This email list is for discussions related to WT-385 "xPON YANG Modules" a document being developed by the Fiber Access WA PON Management PS

ictp@broadband-forum.org

- This email list is for the WT-352 "Inter-channel-termination protocol (ICTP)” a project being developed by Fiber Access WA NGPON2 Wavelength Management PS

For instructions on how to join /leave these exploders, please refer to Join or Leave BBF Groups and Email Lists

FAN Agendas & Meeting Minutes

Pages in this space
Non-PS Assigned Projects that don’t fit under the scope of an existing Project Stream or if they fit under the scope of more than one Project Stream, are developed under the Non-PS Assigned category.

<table>
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<tr>
<th>Project Stream</th>
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<th>PS Leadership</th>
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</thead>
<tbody>
<tr>
<td>Interoperability and Test</td>
<td>Interoperability project stream is dedicated to PON system interoperability of telecom services over multi-vendor and multi-carrier inter-connections. The Interoperability project stream has also added OLT NETCONF management interoperability between OLT NETCONF server interfaces and third-party NETCONF clients such as an SDN controller. Interoperability and test project is responsible for creating test cases documents for vendor certification and conformance. Both vendors and operators benefit from these documents as they describe agreed-upon use cases to support. Being able to exchange information between devices and management applications is crucial for the modern economy.</td>
<td>Vincent Buchoux, LAN</td>
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<tr>
<td>NGPON 2 Wavelength Management</td>
<td>The NGPON2 Wavelength Mobility Management project stream is dedicated to the development of NGPON2 Inter-Channel Termination Protocol (ICTP) for interoperability among suppliers of the TWDM and PTP WDM NG-PON2 subsystem, as well as the suppliers of the TWDM CTs for business and residential applications.</td>
<td>Vacant</td>
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<tr>
<td>PON Abstraction Interface for Time-critical Applications</td>
<td>For flexible and agile service adaptation at a low cost in the next-generation optical access system, a new system architecture, which is based on SDN/NFV technologies, should be required. The most promising way to pursue the new architecture is disaggregating PON functions to functional modules with open interfaces. The project propose a new work item to progress the architecture further by specifying a PON abstraction interface for time-critical processing functions, e.g. Dynamic Bandwidth Assignment (DBA), which is not covered existing BBF documents and on-going projects.</td>
<td>Kota Asaka, NTT</td>
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<tr>
<td>PON Based Mobile Backhaul</td>
<td>The PON based Mobile backhaul project stream is dedicated to the development of PON based Mobile backhaul use cases, mobile system general requirements as well as nodal requirements.</td>
<td>Vacant</td>
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<tr>
<td>PON Management</td>
<td>The PON Management Project Stream is dedicated to the development of NETCONF management models to manage ITU-T and IEEE PON YANG models. Common PON model promote interoperability between NETCONF servers and 3rd party NETCONF clients.</td>
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Projects in Progress for this Work Area

<table>
<thead>
<tr>
<th>WT /MD /SD#</th>
<th>Non-PS Assigned Projects</th>
<th>Abstract</th>
<th>Related Contributions</th>
<th>Editor(s)</th>
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<tbody>
<tr>
<td>WT-280 Issue 2</td>
<td>Multi-service Broadband Network Architecture and Nodal Requirements (TR-178) in the context of PON</td>
<td>WT-280 Issue 2 documents a set of architectures for a broadband multi-service network, addressing typical infrastructures, topologies and deployment scenarios, and specifies the associated nodal requirements for PON Systems.</td>
<td>Jira Contributions</td>
<td>Vincent Buchoux, LAN</td>
</tr>
<tr>
<td>(JIRA Link)</td>
<td>Interoperability Test Assigned Projects</td>
<td>Abstract</td>
<td>Related Contributions</td>
<td>Editor(s)</td>
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<tr>
<td>ID-247 Issue 4</td>
<td>GPON &amp; XG-PON1 ONU Conformance Test Plan</td>
<td>ID-247 Issue 4 defines GPON and XG-PON1 ONU test cases for TR-280 ITU-T PON compliant ONUs. Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.</td>
<td>JIRA contributions (ID-247) Additional References: ID-283: OMCI Schema and ID-284: OMCI Message Sequences</td>
<td>Vincent Buchoux, LAN</td>
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<tr>
<td>WT-309 Issue 2 Amd 1</td>
<td>XG/XGS-PON TC Layer Test Plan</td>
<td>WT-309 Issue 2 Amd 1 defines test cases for the XG-XGS-PON TC Layer. Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.</td>
<td>Jira Issues</td>
<td>Vacant</td>
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<td>WT/MD/SD# (JIRA Link)</td>
<td>NGPON2 Wavelength Management Projects</td>
<td>Abstract</td>
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<td>WT-352</td>
<td>Multi-wavelength PON Inter-Channel-Termination Protocol (ICTP) Specification</td>
<td>NG-PON2, specified in ITU-T Recommendation series G.989, is a multi-wavelength PON system which includes in its scope an additional interoperability dimension in comparison with the earlier PON systems: one that applies between the OLT channel terminations (CTs) within a single NGPON2 system. The NG-PON2 CTs must exchange information related, among other functionalities, to channel profile configuration and status sharing, ONU activation, ONU tuning, rogue ONU mitigation. OLT channel termination interoperability allows diversification of suppliers of the TWDM and PTP WDM NG-PON2 subsystem, as well as the suppliers of the TWDM CTs for business and residential applications. OLT channel termination interoperability is also instrumental in the case of co-operative multi-operator environments, where different operators share the same ODN each using only a subset of available NG-PON2 wavelength channel pairs. This technical report defines the requirements of the Inter-Channel-Termination Protocol (ICTP), which is used to exchange such information between CTs, enabling inter-vendor NG-PON2 interoperability</td>
<td>JIRA contributions</td>
<td>Marta Seda, Calix Denis Khotimsky, Verizon</td>
</tr>
<tr>
<td>WT-385</td>
<td>ITU-T PON OLT YANG Project</td>
<td>This working text defines the NETCONF YANG model for ITU-T PON Systems. Data modelling language can be used to model configuration and state data of network elements. A standards based model promotes interoperability between NETCONF servers and 3rd party NETCONF clients (e.g., SDN controllers).</td>
<td>JIRA contributions</td>
<td>Robert Peschi, Joey Boyd, Samuel Chen</td>
</tr>
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</table>
This working text defines the NETCONF YANG model for IEEE PON Systems. Data modelling language can be used to model configuration and state data of network elements. A standards based model promotes interoperability between NETCONF servers and 3rd party NETCONF clients (e.g., SDN controllers).

This working text defines the NETCONF test cases for OLT to 3rd party NETCONF clients. Executing these test cases as part of a multi-supplier test event will help OLT and 3rd party NETCONF client implementation of the specifications operate as a functional system.

This study examines existing PON management gaps based on combination of WT-383 and WT-385 for the purpose of development of recommended implementation of PON service level management based on BBF YANG modules.

WT-309 Issue 2 defines a set of test cases whose purpose is to verify interoperability between an XG-PON or XGS-PON OLT and a BBF.247 certified ONU. These test cases address the Transmission Convergence (TC) sub-layer (G.987.3 [6], ITU-T G.9807.1 [8] Annex C). Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.

The scope of WT-426 is the verification of NG-PON2 TWDM OLT and ONU interoperability with respect to the Transmission Convergence (TC) sub-layer (ITU-T G.989.3 [7]). Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.
Operators that plan to use ITU-T XG(S)-PON (with or without XG-PON), and NG-PON2 requested the FSAN and BBF Groups to document a PMD (Physical Media Dependent) layer test plan for Conformance Events. Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.

### WT-423
**PMD Layer Test Plan**

**Abstract**

The scope of this project is to specify the PMD layer test plan for Conformance Events. Executing these test cases as part of a multi-supplier test event will help OLT and ONU's implementation of the specifications operate as a functional system.

**Related Contributions**

**Editor(s)**

- Hal Roberts

### WT-402
**PON Abstraction Interface for Time-Critical Applications Projects**

**Abstract**

The scope of this project is to specify the PON abstraction interface for time-critical applications in a disaggregation of OLT system. This technical report supplements ongoing BBF virtualized network efforts and provides background information around the time-critical interface defined in WT-403.

**Related Contributions**

**Kota Asaka, NTT Corporation**

### WT-403
**PON Abstraction Interface for Time-Critical Applications Projects**

**Abstract**

The scope of this project is to specify the PON abstraction interface for time-critical applications in a disaggregation of OLT system. This technical report supplements ongoing BBF virtualized network efforts and defines a time critical interface described in WT-402.

**Related Contributions**

**Kota Asaka, NTT Corporation**

### Special Events

- 4th XGS PON Interoperability Test Event (see CONTRIB_21094 for details)

### Hiatus FAN Projects

Hiatus projects are BBF projects that have open tickets however no activity has occurred on this project for over a year. The following BBF FAN Projects are considered to be in a "Hiatus" status:

- WT-142 Framework for TR-69 Enabled PON Devices
- MD-396 Gigabit Access over FTTx
- WT-156: Using GPON Access in the context of TR-101
- WT-311: Fiber Infrastructure Management System: Architecture and Requirements
- WT-312: GPON Management Requirements
- WT-331: Architecture & Technical Requirements for PON-based Mobile Backhaul networks
- WT-372: Framework for multi-management PON-devices
- WT-394: NETCONF-managed ONT YANG Model
- WT-395: Discovery for NETCONF-managed ONUs