Q3 2017 September Newsletter

Keeping you updated about our activities!
Here we highlight our latest work and focus on areas which are most critical.

A Word from our CEO

As operators look to transform their networks with the greater use of software and virtualization, demand for solutions with associated reference implementations and APIs is growing – the market is now ready for standards-based software deliverables for Open Broadband.

It is with this optimum timing that we have achieved several major milestones at our Q3 meeting. The vBG – the first standard for distributed virtualized Customer Premises Equipment (vCPE) – has been published, and two new Open Broadband projects have been launched as we continue to drive forward the cloudification of broadband networks.

5G continues to be another area of focus for the Forum where our work continues to progress. Work around 5G fixed access and 5G hybrid access is continuing and the next phase in evolution from LTE to 5G transport networking has been published. As this new connectivity is defined, this work will be incredibly important as the divide between fixed and mobile lessens and a holistic broadband network which switches seamlessly between the two emerges.

Significant strides have also been made in our work around Wi-Fi, with the Wi-Fi-In Premise project continuing to move forward. This fills in industry gaps in defining Wi-Fi topologies and management practices (SD-401), and performance tests (SD-398). At this meeting, architectures for multi-device infrastructure with both wired and wireless components were defined, ensuring end-user home networks are truly 'carrier grade' as consumer demand for ultrafast, ubiquitous broadband continue to increase.

Of course, all this work would be meaningless if we didn't inform the industry about it – which is why we've organized two Broadband Access Summits, taking place in October. The first of these will be held at Broadband World Forum, in Berlin on Tuesday, October 24. Featuring presentations from AT&T, Verizon, and BT on Fiber Broadband Access, Cyta and Vodafone, discussion which will focus on Gfast and NG-PON2. The second of these events will take place in Las Vegas on Sunday, October 29, with AT&T, Verizon, Ovum, Momentum Telecom, Lumos Networks and DigitalC joining the line-up.

With so much to educate and update attendees on, we have no doubt these sessions will be a huge success, cementing the Forum's position as the standards organization which will enable the next era of connectivity.

Robin Mersh
Sept 2017

.....

Two Open Broadband projects launched, as virtual Business Gateway standard is published

The first standard for distributed virtualized Customer Premises Equipment (vCPE) has been published as we continue to accelerate our work on Open Broadband, Cloud Central Office (CO) and Software-Defined Wire Area Network (SD-WAN).

The virtual Business Gateway (vBG) (TR-328) accelerates the delivery of new-generation standardized, carrier-class, interoperable business services such as enterprise class firewall and Wide Area Network optimization.

SD-WAN, spearheaded by the Open Networking User Group (ONUG), is enabled by the vBG, which connects to other Broadband Forum initiatives such as CloudCO and the Network Enhanced Residential Gateway. The completion of the landmark specification comes at the same time as the Forum begins work on two major software projects for Open Broadband and makes significant progress on its CloudCO project.

The CloudCO User Managed Objects Framework project creates a cloud-based user interface framework, and a user managed oriented objects template that can be used by all providers. This aims to satisfy customer requirements such as SD-WAN, where the customer wants to have WAN resource telemetry in the user browsers, portals, and for use by their applications. This project will leverage and extend the Forum's work on the vBG and will use standardized APIs such as DMTF Redfish. ®

The second key project is Broadband Access Abstraction Open Source which addresses the requirements, architecture, design, and software required to support the virtualization of access device functionality and enabling an open and interoperable unified management interface for access equipment from different vendors. This project will be managed under the Forum's agile Open Broadband software initiative, allowing for member and non-member collaboration to create a fast feedback loop between the specifications and the software reference implementation that supports them.

.....

Reliable robot demonstrates Deterministic Packet Transport

As the broadband industry prepares for the 5G era, a Deterministic Packet Transport (DTP) demonstration was held. Operating over Layer 2 bridged and Layer 3 routed segments, DPT provides guaranteed delivery with bounded low latency, low delay variation and extremely low loss. As such, it has many use cases including telco systems, mobile networking, industrial networks and automotive networks.

Bringing four components – synchronization, reliability, latency and resource management – the demo in Helsinki used a balancing robot to highlight the reliability element. With DPT, the robot continued to balance even when the connection was interrupted by external influences, such as the lead being pulled out and network issues such as route flapping.

.....

Going Gigabit with Gfast

The number of certified-interoperable Gfast solutions jumped from 7 to 24 in less than three months, as mass deployment of the ultrafast access technology builds.

ADTRAN, EXFO and Viavi have been added to the list of companies whose products have successfully completed the Gfast certification program, run in partnership with the University of New Hampshire InterOperability Laboratory (UNH-IOL).

"From recent leading provider deployment announcements and analyst predictions, there is no doubt that Gfast is gathering momentum, with the value of certified-interoperable systems well-recognized as key for mass-market provisioning of ultrafast broadband," said CEO Robin Mersh. "Having only announced the first Gfast certification results less than three months ago, it's great to see the certification program's rapid and measurable progress."

ADTRAN, EXFO and Viavi join ARRIS, Calix, Huawei, Metanoia, Nokia and Technicolor, which were the first companies to achieve device certification supported by chip manufacturers Broadcom, Metanoia and Sckipio.

.....

Full steam ahead for common YANG project

The Broadband Forum Common YANG Project Stream made significant progress in Helsinki. A set of agreements have been reached on how to move forward when specifying the Access Node multicast YANG model. From these agreements, the group will derive the required YANG code that will enable the management of related multicast functionality via YANG. This is very important as it enables network and service providers to manage a full triple play service via NETCONF/YANG.

In addition, very good progress was made for several other domains including the management of hardware, alarms, forwarding and Quality of Service. This steadily solidifies the baseline set of Common YANG models that are part of Common YANG Modules for Access Networks (TR-383). This provides a foundation for any YANG-related projects within the Broadband Forum.

The project remains deeply involved with the parallel activities ongoing in the Internet Engineering Task Force (IETF) and in particular discussed how to best align with the new strategic direction of the IETF Network Management Datastore Architecture.

Last but not least, the group also accepted several new test case scenarios related to connecting a Persistent Management Agent (PMA) to the Distribution Point Unit (DPU). These verify the NETCONF/YANG communication between the PMA and the DPU, further removing a number of deployment roadblocks.

.....

Work Area Updates from Helsinki

SDN, NFV and BAS projects progressed by Architecture and Migration Work Area

The team has continued to work on the development of TR-359 Issue 2. Building on the momentum of the NFV enhanced architecture foundations defined by Issue 1, Issue 2 introduces Software Defined Networking (SDN) and greater management and will reflect work done in the CloudCO project. This will increase the applicability of virtualization to the wider multi-service broadband network. Work is progressing well and is expected to go to straw ballot in Q1/2018.

The group is continuing to work on the use cases for Broadband Assured Services. Some progress has also been made in defining a specification for Adaptive Bit Rate Multicast in broadband networks, which will reflect work done in DVB. This will create enhanced efficiency for video and media delivery and enable carriers to offer wholesale delivery to Over-The-Top operators.

A new project on Generation of Application Test Traffic is in the definition stages and expected to commence in Q4.

Broadband User Services puts finishing touches to influential USP

The Broadband User Services Work Area had a busy week putting the finishing touches to the User Services Platform (USP), a protocol and architecture that stands to be even more influential than the Broadband Forum's flagship standard, TR-069. The group aims to launch USP in the Q4 2017/Q1 2018 timeframe, with a tentative plugfest set for late February. A public draft of the standard can be previewed now at http://usp.technology.

The BUS group took in many new contributions to the Device:2 Data Model, the standardized model for home networking and other connected devices. Improvements to Wi-Fi modeling, measurement and more were considered and pushed into the update pipeline.

To further expand its work on Wi-Fi and the home network, the group, in collaboration with the Physical Layer Transmission Work Area, made great strides with its Wi-Fi-In Premise project, filling in industry gaps in defining Wi-Fi topologies and management practices (SD-401), and performance tests (SD-398). This includes starting work on defining architectures for multi-device infrastructure with both wired and wireless components to ensure end-users' home networks are truly 'carrier grade.'

Finally, the group considered additional requirements for home network devices focused around security (SD-409). With the number of malicious attacks against gateways and other connected devices gaining steam, giving providers an easy list of security design requirements and best practices to present to their vendors is critical.

Mission accomplished by FTTdp Work Area

The FTTdp Work Area, having completed all of its work bar one document (which is close to completion), has achieved its mission and will be phased out after this meeting. The one document left (WT-374: Yang Models for Management of G.hn Systems in FTTdp Architecture) will be completed shortly, with responsibility handed over to another Work Area.
The group has seen the completion of the FTTdp architecture documentation, TR-301 Issues 1 and 2, as well as the successful completion of the YANG data models (TR-355) for management of the FTTdp DPUs, enabling the full end-to-end management and architecture for ultrafast broadband.

This demonstrates the new work ethos of the Broadband Forum, with Work Areas being set up to complete specific projects and then closing when the work has been finished. This has created a more agile way of working and decreased time-to-market. The FTTdp group was the first to achieve its goal.

Thank you to all members who have contributed to this work and helped form the architecture and driven interoperability into the management of DPUs, enabling one common YANG model to configure services on different vendors' DPU hardware.

FAN prioritizes PON convergence and YANG models

YANG model projects, such as WT-385 (YANG model for management of ITU-T PON), continue to be of high interest to the community and the whole group has agreed on how to start further building Passive Optical Network (PON)-related YANG models. Most significantly for the Q3 meeting, there was stepped-up interest in starting a new project to develop PON YANG interfaces test plans.

The creation of YANG models together with this new test methodology will benefit the service provider community as they move towards a more unified SDN/Network Functions Virtualization (NFV) fiber access network infrastructure.

The Project Stream for Passive Optical Network (PON) Abstraction Interfaces For Time-critical Applications continues to make excellent progress. One significant milestone during the meeting was the first contribution towards the development of the dynamic bandwidth allocation API itself. This work is needed because operators are interested in providing more additional valued or differentiated services to meet the trend towards more diversified network requirements, particularly where the network is used as business infrastructure. These include dynamic bandwidth allocation, energy-efficient Optical Network Terminal (ONT) sleep mode, dynamic wavelength allocation and network protection.

The second FSAN/BBF XGS-PON/NG-PON2 interoperability test session has been scheduled for October 9-13, 2017. The purpose of this event is for PON technology vendors to test their equipment with the purpose of driving technology maturity through interoperability.

The new white paper project, MD-396 (Gigabit Access Over FTTx) has started and aims to promote PON deployment in multiple applications – that is, to use PON as a transportation technology to backhaul all kinds of

access medium (fiber, DSL, cable, etc.) to provide a gigabit access pipe. There has already been agreement on use cases and architecture for the paper.

Innovation Group publishes white paper on Traffic Management

At a time when regulation authorities are regulating internet access and other services delivered over fixed and mobile networks, it is important that the whole ICT industry communicates clearly what traffic management is about. To this end, the Forum has published a white paper on Traffic Management. This high-level educational paper highlights current industry practices for ensuring that networks operate efficiently and offer quality of experience to end-users.

The Innovation Group initiated Birds of a Feather (BoF) sessions on Multi-access Edge Computing alongside the ETSI ISG-MEC group. The second BoF session focused on use cases and field trials from operators and next steps in engaging further collaboration with ETSI ISG-MEC were discussed at the Q3 meeting.

Routing and Transport Work Area publishes next phase in evolution from LTE to 5G transport networking

The latest work on the Broadband mobile backhaul architecture (TR-221 Amendment 2) was approved and published just before the Q3 meeting. This milestone represents a key contribution in the evolution from LTE to 5G transport by providing enhanced resiliency, advanced routing techniques and time synchronization to the mobile RAN and core network for new and advanced services. These changes will be critical in advancing 5G networking which is expected to scale to support 28 billion connected devices and more than six billion smartphones. It is expected most of this traffic will be video and therefore time sensitive in addition to high volume. The new architecture and requirements specification leverages the state-of-the-art work of Broadband Forum partner organizations, including ITU-T SG15 Question 13 and the IETF Routing Area.

The group continues to explore how to transform transport and IP networks to efficiently support 5G and the innovative services brought about by 2020 mobile networks. These new services, through the development of new applications that they enable, generate additional revenues both for the provider and their customers.

The last of the updates to the Ethernet Virtual Private Network (EVPN) architecture and requirements (TR-350) Phase 2 were completed and the work entered the final comment stage of the approval process (straw ballot) in August. To provide time and allow the most effective review of the work by Broadband Forum partner organizations, the comment deadline was extended through to the fourth quarter. The work continues to be done virtually (via the Wiki and conference calls) to allow broader, more expedient participation. The document is on target for publication in early 2018.

TR-350 Phase 2 architects the Metro Ethernet Forum (MEF) Carrier Ethernet service definitions for both E-LINE and E-TREE. The architecture and requirements are based on IETF specifications for EVPN. This work enhances the Ethernet services network efficiency and resiliency, supporting services for new and demanding applications, while potentially reducing expense. The services provided by the architectures are used for 5G transport, network management, video distribution, and big data connectivity.

For more details, please see the EVPN white paper available on the BBF website here .

Those interested in the details of the projects and progress are encouraged to contact the Area Director and/or Project Stream Leads for suggestions on how to get involved and contribute.

Physical Layer Transmission takes Gfast to the next level

Most of the Physical Layer Transmission group's time was spent on Gfast related projects. With the successful launch of the first phase of the Gfast certification program in June, the Gfast Project Stream has turned its attention to the development of ID-337 Issue 2 in support of the next phase of the certification program. This second phase of the certification program will address coax operation, 212 MHz operation, and generally increases the performance requirements. Progress was also made on Gfast performance testing (WT-380).

The first issue of WT-338 for Reverse Power Feeding (RPF) testing is going to Straw Ballot with Power Sourcing Equipment (PSE) standalone tests. DPU standalone tests and system level tests will be included in the second issue.

Bonded Gfast (WT-400) is also going to Straw Ballot from a teleconference call after this meeting.
A new project (SD-415) in support of the next generation of high speed wireline access technologies being developed by ITU-T Q4/15 (G.mgfast) was approved. This study document will gather use cases and requirements, which will be liaised to ITU-T Q4/15 as they develop G.mgfast.

In the VDSL2 Project Stream, Annex Q (35b) performance and functional testing (WT-114i3a2 and WT-115i3a1, respectively) are going to Straw Ballot. The group also progressed the work on testing of long reach VDSL2 for WT-114 Issue 3 amendment 3 and on testing of vectored long reach VDSL2 for WT-249 Issue 2.

In a joint BUS/PHYtx project stream, work progressed on the Wi-Fi In-Premises Performance Testing document (SD-398), which has reached the point where the group will next consider whether to develop a WT.

SDN and NFV Group makes major progress on FANS and Cloud CO

The group has virtually completed the first issue of Fixed Access Network Sharing (FANS) (WT-370), which will be ready for final ballot before the New Orleans meeting. This important work enables the sharing of physical infrastructure between virtual network operators (VNOs) and allows them to manage the equipment as if it was their own asset. This allows VNOs more differentiation of their services than previously available with bitstream-style products.

In the area of Cloud CO, an interim meeting in Turin was held in order to accelerate the completion of WT-384. This allowed the group to commence straw ballot comment resolution at this meeting. This will now be progressed to get the document out and address new technical content in future issues, enhancing the common cloud-based platform to serve both wireline and wireless networks.

The Work Area continued its activities on three additional specification deliverables – Cloud CO Interfaces (deliverable #2 from PS NPIF), Migration to SDN-enabled Management and Control, and Test Cases for Cloud CO Applications. Contributions were made to clarify the various migration approaches. The group, in collaboration with inputs from SPAC, finalized a survey to gain insight into the specific migration use case scenarios. Responses to this will tighten and drive contributions to further develop methods by which legacy broadband networks may gradually migrate to a Cloud CO and support coexistence of the legacy and Cloud CO architecture within segments of the same network. The survey will also look at service providers' reasons for migrating to Cloud CO and ask about their plans for future network redesign and transformation guided by the Cloud CO concept.

A draft containing information on value propositions and key uses cases will be deconstructed to produce briefing papers for external and internal communication. The document and content created from it will be available on the Wiki as a member resource.

Wireline-Wireless Convergence Work Area continues to evolve 5G

The Wireline-Wireless Convergence (WWC) Work Area addresses the needs of converged operators, which have both wireline and mobile networks deployed and are in a position to leverage all their assets with combined subscriber offerings.

Study work on 5G fixed access continued though the Q3 meeting, with an increased common understanding by the Work Area of the issues associated with providing 5G core access and 5G hybrid access in conjunction with existing fixed services. This will be used to assist both 3GPP and the Broadband Forum to develop normative specifications in the release 16 timeframe.

.....

New Broadband Forum tools delivering increased agility and faster working

Our collaborations and contributions are currently being unified on a single integrated platform. Atlassian provides a rich set of extensible capabilities, community licensing, more than 10,000 customers, much faster project development, and is always available.

With this system, the Forum's way of working will shift to fast interactive discussions, with significant uptake in the use of JIRA issues replacing many previously uploaded contributed documents.
To help members make the best use of these tools, various training sessions took place in the run up to and at the Q3 meeting. These proved to be extremely successful, with 1,000 members now using the system.

Want to track new work and participate?
Join 1000+ members' already using Forum's new collaborative sites:
Confluence, Jira and Bitbucket.
Not signed up?
Click here

.....

Documents approved include:

- MR-404: Traffic Management in Multi-Service Access Networks

Editor: Christele Bouchat, Nokia

- TR-221 Amendment 2: Technical Specifications for MPLS in Mobile Backhaul Networks

Editors: Yuanlong Jiang, Huawei, and Haijun Wang, China Unicom

- TR-142 Issue 3: Framework for TR-069 enabled PON Devices

Editor: Greg Bathrick, Calix

- TR-155 Issue 2: GPON ONU requirements for CPE

Editor: Greg Bathrick, Calix

- TR-167 Issue 3: GPON-fed TR-101 Ethernet Access Node

Editor: Greg Bathrick, Calix

- TR-178 Issue 2: Multi-service Broadband Network Architecture and Nodal Requirements

Editor: Greg Bathrick, Calix

- TR-287 Issue 2: PON Optical-Layer Management

Editor: Greg Bathrick, Calix

These documents will be published in the following days. For a full list of all work in progress, click here . Please feel free to share this information with your colleagues, so they are engaged and aware of the developments of this work.

.....

Thank you to our meeting sponsor Nokia!

Members attending the Q3 meeting were invited to enjoy an evening at the Nokia Mansion for a Broadband Forum social.
The view, food, and hospitality were outstanding and we'd like to say a big thank you to Nokia, which also sponsored the Q3 meeting.

.....

Welcome to new and returning members!

We were pleased to welcome seven new and returning members to the Q3 meeting in Helsinki, including Bifrost Communications, CableLabs, Fujitsu Limited, Hisense Broadband, Jabil Circuit (Shanghai) Co., Ltd, PIC Advanced SA and Radisys. We were also joined by five first-time attendees.

.....

Broadband Forum in the news

Since the Q2 meeting the Broadband Forum has received media interest from top tier publications. Fierce Telecom covered the Forum's ambitions to help smaller service providers create open environments and multivendor environments , highlighting the Gfast Council and NG-PON2 Council as two initiatives which could be particularly beneficial for smaller telcos.
Network Communications News (NCN) and UBB2020 both carried in-depth articles covering the Forum's work on Gfast, with NCN carrying Robin's byline Copper Can be Kingmaker In Race to Gigabit and UBB2020 quoting Robin in an article titled Gfast: The Fix For Ubiquitous Broadband.

The Forum's Gfast developments have also caused a stir, both in the press and on social media. Advanced Television , European Communications , Fierce Telecom , IT Wire , Telecom Asia , Total Telecom andUBB2020 all covered the latest announcement.

.....

New social media initiative creates buzz around Gfast and NG-PON 2

With more than 1,000 followers, the Broadband Forum Twitter account is a valuable tool – which we would like to use to promote the work of our members further.

Starting with NG-PON2 and Gfast, we have launched an initiative to increase the social media presence of these technologies. This is a benefit offered to Members only to assist your company in building your social media brand and to promote NG-PON2 and Gfast.

We will use our Social Media accounts to share your thought leadership around NG-PON2 and Gfast, as appropriate, and ask your marketing teams to reciprocate through promotion of Forum social media posts at your discretion.

Please connect with the Broadband Forum on Twitter (@Broadband_Forum), LinkedIn, Facebook and YouTube and use #Gfast and #NGPON2.

.....

Events Calendar

Upcoming Broadband Forum Meetings
Keep the below dates free for this year's and next year's quarterly meetings.

2017 Q4 Meeting: December 4-7, New Orleans, LA, USA
2018 Q1 Meeting: March 26-29 (Europe)
2018 Q2 Meeting: June 11-14 (Asia)
2018 Q3 Meeting: September 10-13 (North America)
2018 Q4 Meeting: December 10-13 (Europe)

Sponsoring a BBF meeting can be a great way to get some company recognition! If you are interested in sponsoring a meeting, then please contact Rhonda Heier at rheier@broadband-forum.org .

Forthcoming Industry Events

- ITU Telecom World: Sep 25-28, Busan, Republic of Korea
- SDN NFV World Congress: Oct 9-13, The Hague
- Broadband World Forum, with BBF Access Europe: Oct 24-26, Berlin, Germany
- BBF Access North America: Oct 29, Las Vegas, US
- Connections Europe: Nov 2-3, Amsterdam, Netherlands

……

Contact information

Questions or ideas? Contact the Broadband Forum +1 510.492.4020 or email info@broadband-forum.org