broadband forum

Shaping the
Future of Broadband

WELCOME TO THE **BROADBAND FORUM**
QUARTERLY NEWSLETTER
Your quarterly resource for updates on recent activities
and our most critical work and focus areas.

Leadership Team Update

Broadband Forum members converged on Antwerp, Belgium, getting together again for our first face-to-face quarterly meeting since March 2020. Presentations and meetings to shape the future of broadband provided endless opportunities to export and import innovative ideas and projects.

I would like to extend a special thanks to Nokia for sponsoring this meeting, as well as putting together an excellent social and networking event.

Last year, Belgium's Federal Council of Ministers announced its national broadband plan, which aims to eliminate the remaining white areas where high speed services are unavailable and roll-out new broadband technologies.

The country, therefore, seemed a fitting location for us to finally welcome back the much-missed face-to-face format of our quarterly meetings. The turnout would suggest our members felt the same – more than 100 were present in Antwerp and nearly an additional 50% connected remotely.

The number of new standards being introduced and the large amount of valuable contributions has remained extremely high throughout our time of virtual meetings. But impressively, during this quarterly meeting, we saw a record number of New Project Initiation Forms (NPIFs) across a host of Work Areas, including Common YANG, FAN, PHYtx, and SDN/NFV, as attention shifts to what is next.

From an industry education standpoint, we have now entered the busy conference season. Following the success of our own UFBB technology event in Den Haag, The Netherlands, we would like to thank all of those who attended and participated. The momentum continues to grow with our event series, with October witnessing many Broadband Forum workshops including BASe North America in Las Vegas and multiple sessions at Network X and Broadband World Forum in Amsterdam. Our commitment to virtual events stands firm with our vBASe session for the Asia Pacific region at the end of November.

We are delighted to see a ten-year high in membership levels, as we continue to grow and build our membership base. As always, a big thank you to the entire Broadband Forum staff for making the Q3 meeting happen so seamlessly. Remember, early bird registration will be available soon for our Q4 meeting in Hawaii and we look forward to seeing you there to close on a remarkable 2022!

………………………………………………………………………………………..

Broadband Forum and HomeGrid Forum unlock G.hn Access certification benefits for operators' deployments

Collaboration between Broadband Forum and HomeGrid Forum has helped unlock greater interoperability and gigabit plus performance for service providers, as the two leading standards development organizations have jointly developed a GHNA (G.hn Access) Certification Program.

The GHNA Certification Program is designed to combine Broadband Forum-based performance testing with HomeGrid Forum-based compliance and interoperability testing for access equipment implementing the International Telecommunication Union (ITU) G.hn standard (ITU-T G.996x series).

"The new collaboration will have widespread ramifications to benefit broadband players across the industry," HomeGrid Forum President Livia Rosu said. "Thanks to the new GHNA Certification Program, service providers will have the confidence to undertake and accelerate effective service deployments with highly performant, interoperable and standard-compliant G.hn Access certified systems that have been awarded both the Broadband Forum and HomeGrid Forum stamp of approval."

The next steps of the collaboration will see the first vendors pass our BBF.GHNA beta trials, to be held at University of New Hampshire Interoperability Laboratory (UNH-IOL) during the week of 26th September 2022, which coupled with GiGAWire testing will lead to GHNA certification.

Read the full story here: https://www.broadband-forum.org/2022-09-08-broadband-forum-and-homegrid-forum-come-together-to-unlock-g-hn-access-certification-benefits-for-operators-deployments.

……..

Focus shifts to Quality of Experience and service-orientated ecosystem at SPAC session

A productive Service Provider Action Council (SPAC) session during the first day of the quarterly meeting sparked debate and garnered key insights from many in the audience, both face-to-face and virtually. The session focused on what value can be derived from a services-led approach to standards work for the service provider community. This would, of course, have to be reviewed and refreshed in alignment with other Standards Development Organizations (SDOs). Broadband Forum outlined its desire for agile network service delivery from Proof of Concept to real-world deployments, monetization and differentiation of services and a multi-service broadband network.

When broadband speed and bandwidth is no longer an inhibitor, Quality of Experience (QoE) will be regarded with equal importance or even as more important, was the message from the Broadband Forum leadership team. It was observed that traditional revenue was declining with the majority of employers willing to adopt home working and harness new revenue models that keep residential broadband and the home worker separate. Broadband Forum outlined its

strategic approach to shift from typically connection-based broadband to a service-orientated ecosystem, and the requirements across the network to deliver an end-to-end QoE service model.

The session, which was opened to all those in attendance, including members and guests, covered an array of topics and pinpointed notable areas that the organization can focus on moving forward. This included the requirement for recognized, defined and appropriate QoE metrics and the need to actively engage with global regulators as regulations can have an impact on price and implementation. How to offer differentiated service offerings to each customer was another discussion point, as well as delivering improved monitoring that enables autonomous networks.

The common conversation was that the Forum needed to collaborate with other SDOs, as well as recognize the digital divide and understand that not everyone has the same QoE. In the future, Broadband Forum must highlight how it can support and educate the whole industry to deliver broadband growth to all of those underserved locations and communities. Another area of discussion revolved around addressing niche markets, such as gaming, with improved QoE and consistent latency. With the average consumer not understanding what latency is, marketing teams will have to simplify to express this coherently to their customers.

Moving forward for future quarterly meetings, there will be an open discussion session for guest keynote speakers to address hot topics or analyst insights, and we invite guests that might be interested in discussing a trending topic to contact the team at info@broadband-forum.org.

....

BASe industry education and events continues at full steam ahead

The BASe series continues at a breakneck pace in its mission to inform and educate the industry. During 2022, there will be a total of 14 vBASe Webinars, seven BASe Knowledge Webinars, a vBASe State of Broadband Summit, vBASe APAC, and seven face-to-face events. A special thank you goes out to all participants at our UFBB 2022 in Den Haag, The Netherlands, with 33 panelist sessions across three days and a great turnout of 100 service provider and vendor technologists. UFBB was a great precursor ahead of welcoming our members back to in-person quarterly meetings.

Across the three days, we attracted a number of insightful panelists, and the interaction during the workshops and the breaks proved yet again that nothing can replace the success of in-person return. It goes without saying that the whole BASe team would like to thank our sponsors, trade associations and attendees who travelled and participated in the event.

BASe sponsorship is at an all-time high with 20 current platinum and gold sponsors. We are excited by the number of returning and new sponsors, and the high level of thought leadership they bring to our events.

Through our virtual BASe (vBASe) events and Knowledge vBASe

events, it is exciting that we continue to drive such a high number of attendee registrations and experience a significant amount of post event downloads, as well as live attendees. If you have ever missed any of our vBASe webinars, you can always download recordings of them at https://www.broadband-forum.org/category_meetings_and_events/past-base-events.

To find out more information on BASe events, sponsorship, and speaker opportunities, visit here. If you want to catch up on the latest Broadband Forum webinars, download the respective recording and slide decks here.

Thank you to our BASe 2022 sponsors!

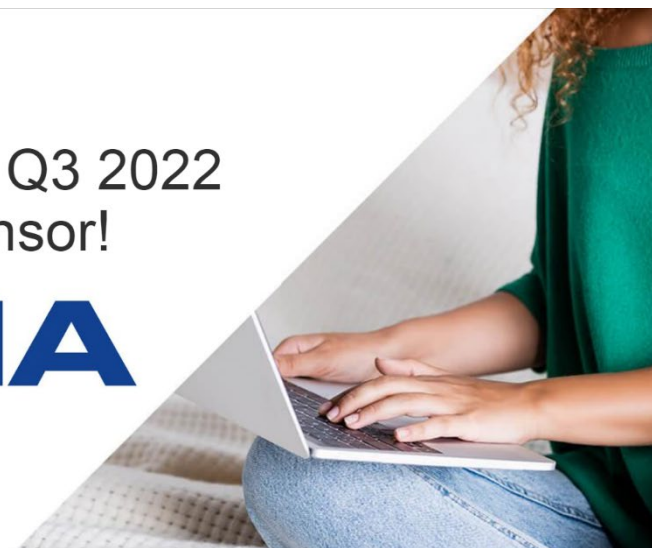..

Thank you to our Q3 Meeting sponsor, Nokia!

Nokia's General Manager, Broadband Networks' Geert Heyninck highlighted that there is a long history of fixed networks in Antwerp. Geert advised that Broadband Forum's work has played an instrumental role in defining universal specifications and increasing the number of overall global broadband subscribers.

A disruption enabled by technology evolution

The insightful presentation also outlined the change in thinking from Fiber-To-The-Home to Fiber-To-Everything. This disruption is being enabled by the technology evolution, according to Geert, such as infinite capacity that can serve many applications, to the transition to Software Defined Networking, the need for low-latency and more sustainability. These are key factors behind this shift in the need for Fiber-To-Everything.

The audience was informed of another important trend, which was the introduction of new and smaller players through investment, government funding and infrastructure builders.

Geert informed the attendees that the industry needs to play an increasingly important role to accelerate smaller fiber rollouts by new players, through reference implementations, deployment guidelines, simplified configurations and align with non-telco industry bodies.

....

Work Area Updates

For a full list of all Technical Reports published by Broadband Forum, [click here](#). Please feel free to share this information with your colleagues, so they are engaged and aware of the developments of this work. For additional insight and to get involved, [sign up for access to Broadband Forum tools](#) and access your account using your company email address.

ATA - Finally back to in person meetings!

Target: The Access & Transport Architecture Work Area maintains primary architectural work of the Broadband Forum. This work reflects the control, management and data plane aspects of the Broadband Forum's defined and new architectures. These architectures are augmented to leverage new industry practices while protecting the investment in broadband networks already deployed.

Outcomes:

- Mobile Transport & Routing Project Stream - MR-522 Mobile-transport network slice instance Management Interfaces (MMI) - Released!

- Performance, Experience, Application Testing Project Stream - WT-452.2 Quality

Attenuation Measurements using Active Test Protocols - Straw Ballot comment resolution completed!

Progress:

- Mobile Transport & Routing Project Stream - Next steps discussion identified a number of potential future work items for the project stream.

- Access Architecture Project Stream - WT-459i2 working through Straw Ballot comments making significant progress.

- Access Architecture Project Stream - WT-474 Subscriber Session Steering project continuing YANG data modeling project (YMSSS) for the entities and relationships defined in WT-474 offline via BitBucket.

- Access Architecture Project Stream - WT-487 DBNG for Wired Access - Under development.

- Access Architecture Project Stream - WT-497 - WiFi Authentication - Contribution started and the first contributions were adopted.

- Performance, Experience, Application Testing Project Stream - WT-471i3 - IP-Layer Capacity Metrics and Measurement – Incorporating updates from the OB-UDPST project team.

- Performance, Experience, Application Testing Project Stream - Interest was expressed in starting QED work on data models and using Layer 2 performance measurement (e.g., Y.1731).

- ATA Marketing Group - See [Join or Leave BBF Groups and Email Lists](#) to subscribe.

For more information on ATA Work Area's ongoing work, visit: https://wiki.broadband-forum.org/display/BBF/Access+and+Transport+Architecture.

Key components of the "App-Enabled Services Gateway" near completion

Target: Updating the Broadband Forum's highly successful USP protocol and Device:2 data model to support the app-enabled services gateway.

Outcomes: WT-181 Device:2.16 and WT-369 are on track to be released by Q1 2023. Look for publication dates for WT-488 and WT-492 soon.

During the meeting, the USP and Data Model Project Streams focused on working with joint prpl Foundation/Broadband Forum members to use USP to enable microservices (that is, containerized applications for the app-enabled services gateway). Coupled with updates to the TR-181 data model for improved Software Module Management (SMM) and more, these key components will be released early next year.

The Software Hardware, and Applications Project Stream (SHAPS) continued work on WT-492 for a solid vision of the "App-Enabled Services Gateway (ASG)". Lookout for more news on the finalization of the "design principles" behind the ASG as the project nears completion.

Lastly, the Subscriber Network Infrastructure Project Stream (SNIPS) continued its work on the common terminology and architecture for the operator-grade end-user network, relevant to a host of other work both present and in the future (WT-488), and finalized tests and metrics for Wi-Fi 6E/mesh/multi-AP tests for operator-grade Wi-Fi (WT-398i3).

Take a look at the BUS Work Area's latest work: https://wiki.broadband-forum.org/display/BBF/Broadband+User+Services.

Common YANG broadens applicability to include MoCA Access

- **Target:** Specify YANG modules that are applicable to multiple Work Areas, provide support to those same Work Areas for their specific YANG projects, and maintain YANG Best Current Practices, processes, procedures, and tools.
- **Progress:** Moving forward on the next Amendment of WT-383 via enhancements for existing YANG models, as well as providing new modeled methods for solving the scale puzzle.
- **Outcomes:** The group kicked off the specification of YANG Modules for MoCA Access 2.5 interfaces.

The Common YANG Work Area continued to make good progress on its key project deliverables, in close collaboration with both SDN/NFV and FAN Work Areas.

Work on Amendment 6 of TR-383 'Common YANG Modules for Access Networks' continues to move forward, with several contributions accepted on QoS and multicast. Overall, the next amendment aims to add functionality that addresses scale in large networks, as well as to further improve existing functionality.

The specification of YANG modules for VoIP is progressing well, with a formal review planned after completion of all related open pull requests. This work is intended to be covered in a future amendment of TR-383.

The updated New Project Initiation Form (NPIF) for YANG Modules for MoCA Access 2.5 was reviewed and the group agreed to kick off the work in WT-496. An initial data model proposal was brought forward and went through a first review.

A joint review was held with the SDN/NFV and FAN Work Areas to review the updated NPIF for Unified Access Management (UAM) Abstraction. Further scope clarification is requested and will be discussed as part of an interim conference call.

For an overview of the Common YANG Work Area's current activities, please visit: https://wiki.broadband-forum.org/display/BBF/Common+YANG+Work+Area.

FAN continues key progress across its Project Streams

Target: The Fiber Access Networks (FAN) Work Area specifies and maintains PON architecture and nodal requirements, PON abstraction and mobile backhaul requirements. It is also responsible for PON test suites related to ITU-T PON Conformance and Interoperability, and compliance Test Plans related to XGS-PON, NG-PON2 and PMD/TC Layer. Lastly, it is responsible for ITU and IEEE PON YANG data model

specifications.

In Progress: Unassigned Project Stream

In the last quarter, the Unassigned Project Stream continued with:

- The development of WT-142 Issue 4 Framework for CPE WAN Management Protocol (CWMP) and USP enabled PON devices. WT-142 Issue 4 contributions were integrated into the Working Text and this was prepared for Straw Ballot during the Q3 meeting.

- Multi-management study on how to handle multiple management domains (e.g., OMCI and USP). This study continued to review contributions related to firmware management and VLAN bootstrapping.

During the last quarter and Q3 meeting, the **Interoperability Project Stream** progressed:

- DTP-255 Issue 2 GPON Interoperability Test Plan: The group continued to review test cases for this Draft Test Plan and discussed a potential appendix to describe configuration used to achieve these test cases.

- Draft version of DTP-255 will be discussed. A draft of DTP-247 Issue 4 Corrigendum 1 version was discussed.   FAN will schedule a future Straw Ballot Readiness meeting for this Test Plan.

PON Management Project Stream

 Over the last quarter, the PON Management Project Stream continued with:

- WT-385 ITU-PON YANG Management Issue 2 Amendment 1 work. Contributions included alarm identities.

During the Q3 meeting, the PON Management Project Stream reviewed:

- Combined OLT-ONT management and WT-489 features. A way forward to add ONU modeling to WT-385 was proposed. The group agreed with the principle of having a list of ONUs based on IETF schema mount within the scope of WT-385, but with the option to build something else next to it (e.g., via a choice statement or a feature).

During the Q3 meeting, two new NPIFs were approved:

- 50G PON

- 25G PON (A project page will be created with open questions to be finalized)

For more on the FAN Work Area's ongoing work, please see: https://wiki.broadbandforum.org/display/BBF/Fiber+Access+Networks.

Innovation Group is back underway!

As we return to face-to-face meetings after this long pause, the Innovation Group is welcoming the submission of any ideas or projects that members might feel are disruptive or may not perfectly align to any existing areas of focus within the Broadband Forum.

The Innovation Group will review the proposals and, as it sees fit, help to organize a wider Broadband Forum discussion, with the creation of a workshop or a Birds of a Feather (BoF) session. Please approach Christele Bouchat and Mauro Tilocca, the Innovation Group Leaders, with your ideas and projects and the group can look at scheduling dedicated innovation tracks at our quarterly meetings in the future. Any accepted submissions may act as a catalyst for the creation of new projects within the Forum.

PHYtx Work Area ready to publish TR-338 Issue 3

Target: To help service providers deploy equipment that will provide a better Quality of Experience (QoE) for their end-users.
Progress: Resolved all the technical and editorial comments on the Working Text of 'Reverse Power Feed Testing Issue 3' (WT-338i3). WT-476 'G.hn Access Performance Test Plan' is on track to include performance pass/fail metrics.
Outcome: WT-338i3 is ready for Final Ballot approval.

At this meeting, the PHYtx Work Area addressed all remaining technical and editorial comments provided during the Straw Ballot review of WT-338i3 'Reverse Power Feed Test Plan'. The Working Text is now ready for Final Ballot approval at the Q4 Meeting. This issue adds testing of reverse power feeding over coaxial cable deployments, according to ETSI TS101 548-2, increasing the operators' options to reliably roll out reverse powered access equipment.

After the publication of TP-337i4, the PHYtx Work Area put forward a goal to address certification of the accuracy of diagnostic parameters, such as Actual Transmit power (ACTATP); Quiet line Noise (QLN) and Active Line Noise (ALN). Having a clearer view of these physical parameters help to deliver better QoE by enabling proactive maintenance in the access network.

The Plugfest to obtain the WT-476 'G.hn Access Performance Test Plan' pass/fail metrics has been set for September 26-30. In cooperation with the HomeGrid Forum (HGF), multiple Point-to-Point use cases have been introduced in order to better reflect the GHNA deployment scenarios in the Test Plan.

When complete, the performance requirement of WT-476 will become part of the GHNA Certification Program in collaboration with the HomeGrid Forum. The Test Plan is planned to be ready for Straw ballot review by the Q4 Meeting.

For further insight into the current work of the Physical Layer Transmission Work Area, visit: https://wiki.broadband-forum.org/display/BBF/Physical+Layer+Transmission.

SDN/NFV publishes TR-484 on "Access Network Abstraction"

• **Target:** Define the Cloud Central Office (CloudCO) architecture using SDN, NFV, and cloud technologies to support network functions fundamentally redefining the architecture of access and aggregation networks and support the migration of SDN and NFV into all aspects of broadband networks facilitating the agile deployment of new distributed broadband services and applications for operators with greater operational efficiency and lower cost.

• **Progress:** The SDN/NFV Work Area continues to progress the Cloud-based-Central Office (CloudCO) project for virtualized network functions, SDN management and

control and CloudCO domain orchestration capabilities in Broadband Network. The main activities currently ongoing are related to the disaggregation of the access node and to define the related interfaces. The "Cloud Component" Project Stream is continuing work on Automated Intelligence Management and Fixed Access Network Sharing. Progress continues to be made on Smart SD-WAN.

- **Outcomes:**

Straw Ballot of WT-477 on 'CloudCO Enhancement - Access Node Hardware Disaggregation' has been completed. The publication will be finalized once all the missing data models are created and reviewed by the Common YANG Work Area. The finalization of WT-477 will lead to inputs to WT-413 Issue 2 on 'SDN Management and Control Interfaces for CloudCO Network Functions' to complete the part related to disaggregated access node and flow control interfaces. A joint session was held on the WT-413i2 with the ATA Work Area covering Edge IP and BNG Interfaces.

On the Artificial Intelligence and automation fronts, work continues on WT-486, which specifies the interfaces for the Automated Intelligent Management Framework specification TR-436 previously approved. A discussion was held on how to complete the document with missing interfaces, and the team agreed to base the proposal on what is already available from TM Forum and then prepare a liaison to TM Forum to support. While this is a different Project Stream within the SDN/NFV Work Area, network automation and low-maintenance operations are imperative for simplifying network validation and engineering, streamlining network deployment and upgrades, and improving operations with less error-prone and automated OAM in the CloudCO environment. This will also automate some management functions and help realize rapid troubleshooting and pre-emptive maintenance.

The Work Area has also begun work on NPIFs on AI for Broadband Access and Access Node Disaggregation Issue (WT-477i2) and will continue the discussion around the future work planning. The group presented a proposal to extend the vOMCI specification to include telemetry without impacting ITU-T specification (G.988) on OMCI and they agreed to open a NPIF for an amendment to include this and other inputs.

There was a proposal related to the sharing models for WT-386i2 on FAN Sharing with an initial plan to submit draft data models for the Q4 Meeting and updating the document for the Q1 2023 Meeting.

A proposal for collaboration between Broadband Forum and the Telecom Infra Project (TIP) has been proposed. The two groups have two different goals with Broadband Forum developing specifications (architecture, interfaces) and TIP developing common RFI requirements to be applied to multiple operators.

Updates were also presented about the Broadband Forum-ONF Tiger Team on BBF Adapter (VOLTHA), the CloudCO demo for Broadband World Forum and OB-BAA on current and future releases. A joint meeting between the SDN/NFV, FAN and Common YANG Work Areas dealt with a new proposal for the abstraction of northbound interfaces on a normalized YANG mount interface and data models for disaggregated OLTs and FANS.

More information about the SDN/NFV Work Area can be found at: https://wiki.broadband-forum.org/display/BBF/SDN+and+NFV.

WWC has progressed Phase 3 specification work towards completion

- **Target**: Address the needs of operators, which have wireline or mobile networks deployed so they can leverage their assets with combined subscriber offerings with a converged core.

- **Progress**: The WWC Work Area is progressing work on the third phase of specification development. It currently has two active Project Streams, the 5G Project Stream and IMS for 5G-RG Project Stream. With this work, the group continues to subsume more of the capabilities of the 5G architecture.

- **Outcomes**: Work continues on a new set of capabilities and enhancements with the latest specifications in progress for subsequent publication.

Work in the WWC Work Area has transitioned from improving the basic set of specifications in Phase 2 to focusing on topics that bring more value to 5G for wireline and provide operators with increased flexibility, revenue potential and deployment options. The goal is to increase the service capabilities of the network to allow operators to fully leverage convergence of their networks while at the same time giving them more paths to transition their networks to a single 5G Core.

The group continues to incorporate capabilities from the 5G Toolkit into our specifications to realize a variety of use cases. These range across a broad spectrum and include topics such as hybrid access, enhanced work from home, access sharing scenarios and convergence of voice with the mobile system. This work will allow converged operators to provide a uniform experience to their customers irrespective of the access or appliance they are using, supported by a common and streamlined back office and control plane.

The 5G Project Stream is finalizing the two specifications, WT-457 (FMIF Functional Requirements) and WT-458 (CUPS for 5G Fixed Mobile Convergence), both of which expand the deployment options for 5G WWC, with those documents entering Straw Ballot by the end of the year. The IMS for 5G-RG Project Stream addresses 5G-RG IMS Voice support, with work on the architecture and a profile for residential voice. Work is moving forward on WT-493 (IMS for 5G-RG Architecture) and WT-494 (IMS for 5G-RG Residential Voice Requirements). This key piece of work will converge legacy voice services onto the 5G system. With these two key baseline texts established, there is now an opportunity for all interested parties to contribute to this important work.

For 5G-RG Hybrid Access, it was agreed that the group would expand the work to address the TR-181 Data Model Extensions for 5G-RG supporting ATSSS. The group jointly held a session with the BUS Work Area to introduce the 3GPP's Release 18 Study output, and this is expected to facilitate a WWC study around "Devices behind the RG".

The group continues to expose the industry to the latest WWC work and supports the ongoing education and marketing activities, including the continued development of its webinar series. The WWC Work Area has an upcoming webinar on September 27 to update the broadband industry on the IMS for 5G-RG progress.

Broadband Forum is taking an important role in developing 5G, continuing the productive cooperation with 3GPP, and making recommendations for the connection points between the fixed and 5G mobile core networks in order to drive core convergence.

For more on the WWC Work Area, please see: https://wiki.broadband-forum.org/display/BBF/Wireless-Wireline+Convergence.

OB-BAA – Ongoing collaboration between Open Source and Open Standards continues to advance and accelerate the adoption of interoperable, standardized solutions across the industry

The Open Broadband – Broadband Access Abstraction (OB-BAA) project team is finishing working on Release 5.1 and finishing up the Broadband World Forum demo for presentation in October. Release 5.1 encompasses microservice discovery and integration with shared datastores and scale testing of 10,000 ONUs. The group is currently planning Release 6.0 activities, due to begin in Q4.

For more information about the OB-BAA project's latest work, see: https://wiki.broadband-forum.org/display/OBBAA/Open+Broadband-Broadband+Access+Abstraction+Project+Home.

OB-MAP and prpl Foundation continue joint collaboration

The Open Broadband – Multi Access Point (OB-MAP) project and the prpl Foundation's prplMesh project are establishing a baseline vision of how data and control commands will be represented in TR-181. This will influence the design of the APIs presented by prplMesh. The data model (and prplMesh APIs) will meet the diagnostics and management needs of service providers that use multiple physical layer networking technologies to deliver ever-increasing broadband bandwidth and innovative services through increasingly complex home networks to end-user devices.

The OB-MAP project team has continued to collaborate with prpl team on requirements and feature prioritization, and data modelling of multiple devices and services in a mesh network. Progress has also been made on prplMesh's Northbound API (NAPI), and the group has been assisting with the use and definition of Broadband Forum's USP support for internal services. There have been fruitful discussions about onboarding and setting up SSIDs across a mesh network. Support for Wi-Fi 6E in the 6Ghz band is also being discussed.

For more on the OB-MAP project's ongoing work, please see: https://wiki.broadband-forum.org/display/OBMAP/OBMAP+Home.

Goldeneye Release launched by OB-USP-Agent team

Current Efforts: Building on the successful launch of its Falcon Release (Release 6) at the end of June, the OB-USP-Agent project team has kicked off its Goldeneye Release (Release 7).

The latest release's scope is squarely in the sights of the MQTT capabilities of the OB-USP-Agent. Amongst the key efforts planned for Goldeneye are shoring up the MQTT implementation by resolving some known issues and completing any related enhancements. Finishing off support for the new USP 1.2 features and providing support for the MQTT Bulk Data Collection mechanism will also be addressed.

Future Plans: Aligning with the OB-USP-Agent project team's 6-month release cadence, Goldeneye is expected to be ready towards the end of the year.

For more on the OB-USP-Agent project's ongoing work, please see: https://wiki.broadband-forum.org/display/OBUSPA/OB-USP-Agent+Home.

Eighth OB-UDPST makes progress with contributions coming from new sources

Current progress: Now that the Internet Engineering Task Force (IETF) has published RFC 9097: 'Metrics and Methods for One-way IP Capacity', the IP Performance Metrics Working Group has adopted the OB-UDPST protocol specification as a working group draft and received an early review from the IETF Security Directorate. Many aspects of the protocol will be improved as the OB-UDPST project team addresses the review comments, such as the revised four security modes of operation needed, expanded authentication of the Control Phase messages, key management procedures and more secure firewall operations made possible by small protocol changes. The plan is to keep the UDPST running code and the Internet Draft in-sync.

Meanwhile, the University of New Hampshire InterOperability Laboratory (UNH-IOL) hackfest approved a project for UDPST. Broadband Forum Technical Chair Lincoln Lavoie led a team of hackers working to build a CI testing system for UDPST, identified as a need earlier this year. This project is a basis for automated regression-testing of new patches and Releases, and should minimize time-consuming manual work. Integration with the Bamboo platform will follow the review by the project team.

Future Plans: The next steps are likely to include a supplemental release, 7.5.1, coming soon. This release will pick-up feedback from users of one of the earlier releases. Issue 3 of TR-471 plans to incorporate all of the improvements and features deemed useful in the OB-UDPST project. The OB-UDPST project team will follow the IETF IP Performance Measurement (IPPM) Internet Draft development and comments closely.

For more information on the OB-UDPST project team's ongoing progress, please visit: https://wiki.broadband-forum.org/display/OBUDPST/OB+UDP+Speed+Test+Home.

OB-5WWC project progresses into the implementation phase

Open Broadband-5WWC (OB-5WWC) is an Open Source project focused on bringing the full benefits of the 5G ecosystem to fixed-line services and offering a full end-to-end solution to operators. The aim is to create a reference implementation of the Broadband Forum specified Wireless-Wireline Convergence solution for 5G capable Residential Gateways (5G-RGs). There are already key Broadband Forum and 3GPP specifications available to help fulfill the need for 5G and convergence, and a 5G-RG reference implementation will be of great benefit to operators, providing shorter time-to-market for products and reduced development times and cycles.

OB-5WWC also seeks to provide a production grade 5G solution stack capable of integration with OpenWRT/RDK-B frameworks and to provide a reference for testing Access Gateway Function (AGF) and RG test tool development.

Current Progress: The detailed design including WWCd as a key component was completed this quarter. This includes developments on Control Plane Transport and the Wireshark enhancements for the specifications from the Broadband Forum. Wireshark is the industry-standard tool that is continually used by implementers. Our contributions will be part of the upcoming major Wireshark release.

A new development environment was established and Continuous Integration (CI) operationalized, with exploration taking place of the components for the end-to-end test environment, including AGF and 5G Core. The development includes the solution design of the Control and User Plane transport including the Stubbed AGF test tool, and 5G Wireless Wireline Convergence User Plane Encapsulation (5WE), and the 5G controller (WWCd) providing registration and session management.

Next steps: The project team's next steps will be to start the MVP implementation of WWCd and further improve the test environment.

There is now an opportunity for interested parties to offer contributions as we enter this key phase of implementation. The project remains open to all interested parties, including candidates with software development experience in the C programming language, and radio module and mobile experience.

For any interested parties (including non-Broadband Forum members) that wish to be part of the project, please sign the project participation agreement online here.

For more on the OB-5WWC project's current work, please see: https://wiki.broadband-forum.org/display/OB5WWC/OB-5WWC+Home.

....

Welcome to our new and returning members!

There were 159 registered attendees at the Q3 Meeting, including 107 in-person and 50 remote attendees. We specially welcomed 26 first-time attendees. Guest companies at the meeting were Bumpconductor, Meta, Nagra, Pantacor and Tp-Link.

Are you interested in becoming the next member of the industry's leading standards body in defining broadband networks? Broadband Forum membership will not only accelerate your company's progress but enable you to become a key influencer in developing 5G, the Cloud, the Connected Home and Access Networks.

We have a range of membership options for companies of all sizes, from startup companies to large corporations and not-for-profit organizations. Our new Regional Operator Membership category has further opened participation; take a look for further details of the access level privileges, benefits and requirements.

To learn more about the benefits of membership, watch the video interview with Rhonda Heier, Director of Membership Development, as Rhonda discusses the value of the Broadband Forum membership here or email rheier@broadband-forum.org for more information.

....

App-enabled services gateway, network latency and fixed broadband growth are key themes over the last quarter

Oliver Johnson, CEO of Point Topic produced a blog on the number of [global fixed broadband subscribers continuing to grow](#). Oliver highlighted the growth markets, compared regional market shares and the countries that are leading the way in terms of fixed broadband penetration.

Ken Ko, Managing Director of Broadband Forum discussed the [importance of network managed latency](#) and outlined the key challenges and opportunities that the industry faces. As we continue to recognize and address the viewpoint that speed alone does not define a broadband subscriber user's experience, there is a shift in focus among service providers on Quality of Experience (QoE), new Average Revenue Per User (ARPU) growth opportunities and service differentiation.

A key project that has been introduced by the Broadband Forum is the new WT-492 standard 'Software-Based Architecture for the App-Enabled Services Gateway - Design Principles.' An article on this project by **Craig Thomas, Vice President Business Development and Strategic Marketing at Broadband Forum** was [published in IEEE Xplore](#). Craig advised how service providers' business plans can be revolutionized by looking towards end-user network gateways, such as Wi-Fi routers, as a platform to unlock a myriad of third-party applications and services,

Craig was also [interviewed by ViodiTV](#) on the new project with the new standard presenting an opportunity for "app-store-like" functionality for end-user services, and helping service providers effectively deploy, activate and manage third-party applications. This app-enabled services gateway will allow service providers to differentiate and scale their business models to provide a more customizable offering to each subscriber.

……

Events Calendar

Broadband Forum Meetings and BASe Events

<u>**Q3 2022**</u>

- September 27, 2022, WWC Knowledge Webinar on WWC IMS Update, BASe Knowledge

<u>**Q4 2022**</u>

- October 6, 2022, Broadband Access Webinar on Mobile xHaul and Fiber Access, vBASe, Virtual
- October 15, 2022, BASe North America, F2F Conference Workshop, FTTx and Connected User
- October 18-20, 2022, Network X, Four Workshops covering CloudCO and SDN Migration, Connected Subscriber, Multi-Servic Access
- November 5, 2022, Connected User Webinar on IoT and working with App providers, vBASe, Virtual
- November 15-17, 2022, PON: New Use Cases on service provider and vendor views, vBASe, Virtual
- November 29, 2022, Virtual APAC Summit on FTTx, TelcoCloud and Connected User, vBASe APAC
- December 5-8, 2022, Broadband Forum Q4 Meeting, Hawaii
- December 13, 2022, Broadband Access Webinar, vBASe, Virtual

To register for our latest events, visit: https://www.broadband-forum.org/meetings-and-events.

Sponsorship opportunities are available for Broadband Forum's quarterly meetings and BASe events. Sponsoring Broadband Forum events is a great way to highlight your company and exhibit your company's innovation in the broadband industry – including demonstrations or prototypes – while showing your support of Broadband Forum. Opportunities vary and can be customized to accommodate a variety of budgets.

Please view the list of our standard sponsorship packages and benefits at: https://wiki.broadband-forum.org/display/BBF/Sponsorship+Opportunities.

If you are interested in sponsoring a meeting, please contact Rhonda Heier at rheier@broadband-forum.org.

....

Contact information

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