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.

A welcome from our leadership

At the end of August, our new Broadband Forum Executive Advisory Board (EAB) held its second session. The board's 16 global member companies participated in discussions to help drive the Forum's strategic direction, fulfil service providers' future investment needs, and ultimately deliver greater value to subscribers.

We partnered with the Fiber Broadband Association at this year's Fiber Connect in August, hosting BASe Technology Deep

Ken Ko, Managing Director

Craig Thomas, VP Strategic Marketing and Business Development

Dives which both educated attendees and drove important technical discussions. These sessions explored the technical challenges and opportunities ahead for operators looking to leverage broadband from the connected fiber user to the data center and everything in between.

Our successful BASe series will continue for the remainder of the year and into the first quarter of 2024. We will be in Paris in October for this year's Network X, showcasing our CloudCO Demo and three technology workshops. Our vBASe webinars continue to generate a number of registrations, virtual attendees, and downloads, with two more in October and November to look forward to. After consulting our service provider members, we have now moved our BASe Technical Summit (formerly UFBB) to March 2024 in order to align with our Q1 Meeting. Speaker paper proposals have re-opened, and more details around the location and dates will follow shortly.

The whole Broadband Forum community would like to extend our condolences to the family and friends of Al Morton, who passed away in June. Al was an important Broadband Forum contributor, respected colleague, esteemed OB-UDPST Project leader, and friend. Al played a key role in developing broadband standards supporting benchmarking methodologies and performance metrics for improving internet access.

For the past several months, Ken and Craig have worked closely with the Board of Directors to plan a smooth transition as Ken heads into a well-earned retirement at the end of the year, at which point Craig will transition to CEO. We would like to welcome Karina Rocha-Gabbard to the BBF family as our new Operations and Support Manager. Please say hello to Karina when you get the chance to meet her!

Our Town Hall Innovation Series (THIS) sessions will return at the 2023 Q4 Meeting with a focus on security within the broadband ecosystem. The call for papers is now open, so please submit any suggestions to info@broadband-forum.org. We look forward to seeing you all in Bangkok, Thailand in December.

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Seeking Member Feedback for Work Area Director Candidates

The Broadband Forum has received statements of candidacy for leadership of the following work areas, where two-year terms begin in January 2024.

- Common YANG
- Physical Layer Transmission
- SDN and NFV
- Wireless-Wireline Convergence.

Beginning later this month and extending through October 23, we will solicit feedback from members to assist in the Work Area Director appointment process. For more information, see the 2023 Work Area Director Appointments in the BBF member wiki.

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Present at the Q4 Town Hall Innovation Series!

The next Town Hall Innovation Series (THIS) will take place on Monday, December 5th during the Q4 Meeting. The call for papers is open.

The topic is Security, more specifically:

- Customer Premises devices (Residential Gateway, IoT)
- Applications (on customer premises and in the network)
- Network and Cloud infrastructure security (including Government requirements)
- Industrial IoT (SASE/VPN IoT over broadband)
- Security as a Service

The topics presented at the THIS sessions align with Broadband Forum's strategic vision and industry trends. These topics are expected to stimulate future work for the Forum and act as a catalyst for new projects.

Please submit ideas to this@broadband-forum.org.

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BBF in the news: 5G Fixed Wireless Access, QED, AI-enhanced CPE among the flavors of the quarter

Craig Thomas recently spoke to Communication

Components Magazine about the WWC Work Area's latest project on 5G

FWA connectivity. The article highlighted the need for multi-gigabit connectivity in Multi-Dwelling Units, and the efforts that are currently
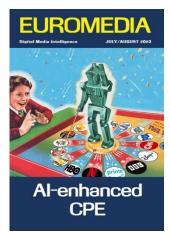
helping to fill the connectivity gap by reusing existing property infrastructure cabling. Similarly, WWC Work Area Directors Christele Bouchat and Manuel Paul, as well as Broadband

Forum contributor Helge Tiainen, all contributed to an article on the topic published in Connectivity Business News.

Broadband Forum contributor and Vodafone's Gavin Young explained to Broadband Breakfast how the Forum's Broadband QED project is providing the perfect framework to tackle critical concerns such as network latency, consistency, predictability, and reliability to help improve customer QoE.

Artificial Intelligence can change how households consume content, but what role will AI-enhanced CPE play? Connected Home Council Chair Jason Walls spoke to Euromedia Magazine in its July/August issue. Walls discussed how adopting a standardized, containerized services approach can bring greater fluidity and control, and how CPE with built-in application intelligence can enable network operators to offer more customized offerings.

Walls also produced a blog on how ISPs can "hit a home run" by taking hold of the many possibilities that IoT user services offer. The article laid out the reasons why ISPs are in a prime position to

own the smart home and how Broadband Forum is simplifying the path to success with its Smart Home Project Stream.

In anticipation of the USP Summit, Walls and Bjørn Ivar Teigen collaborated on a blog discussing how the User Services Platform (USP) is offering ISPs a clear route to managing the complex connected home environment while delivering greater value and reduced costs. The duo outlined how the summit

provides insights on the standard that is shaping the future of software management.

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Work Area Updates

For the 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 with 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 - Generating a "virtual" volume of progress

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:

- Performance, Experience, Application Testing Project Stream - TR-452.5 Quality Attenuation Measurements Using L2 PM OAM - Published!

- Performance, Experience, Application Testing Project Stream - WT-452.7 Quality Attenuation Measurements Using L2 and L3 Active Protocols in Multicast Environments - New!

- Performance, Experience, Application Testing Project Stream - WT-390.2A1 - Performance Measurement using Stamp in Access Networks - to Straw Ballot

- Access Architecture Project Stream - Multicast Group Delegation for Linear TV and Live Event Video Streaming - proposed NPIF

Progress:

- Access Architecture Project Stream - WT-459.i3 Multi-Service Disaggregated BNG with CUPS - in progress

- Access Architecture Project Stream - WT-459.2i2 Multi-Service Disaggregated BNG with CUPS: Integrated Carrier Grade NAT function. Reference Architecture, Deployment Models, Interface, and Protocol Specifications - in progress

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

- Access Architecture Project Stream - WT-497 WiFi Authentication - in Straw Ballot comment resolution

- Performance, Experience, Application Testing Project Stream - WT-452.3 Quality Attenuation Conformance Testing - in progress

- Performance, Experience, Application Testing Project Stream - WT-452.4 QED Measurement Formats (via BitBucket and markdown) - in progress

- Performance, Experience, Application Testing Project Stream - WT-452.6 - Applicability of IOAM in Supporting QED Measurement - in progress

- Performance, Experience, Application Testing Project Stream - WT-471i4 IP Capacity

Metrics and Measurement - in progress

- Performance, Experience, Application Testing Project Stream - WT-499 Service Metrics contribution - in progress

We had a great meeting with good progress made across our projects.

New ideas: In Q2 2023, We resumed our brainstorming sessions which have since resulted in in lots of great ideas for potential new work items and activities. Please keep it going! We compiled the list of ideas on the new idea wiki page and each idea will eventually be broken out into its own wiki page for further development. Please feel free to add any further ideas you may have to this page and reach out to the listed contact if you are interested in participating in this potential work.

ATA Marketing: One key point raised during the brainstorm was the enthusiastic re-commitment to marketing of ATA work, the work that can potentially be done in ATA, and work that can potentially be done in the Forum. As we said in the meeting, we are doing great work, but if we don't tell anyone, it will just sit on a shelf and collect dust. ATA Work Area Directors David Sinicrope and Jon Newton will work with Craig Thomas offline and set up a structure where marketing will be an integral part of each PS's activities. Stay tuned on the ATA email list for more on this important topic and please reach out to marketing counterparts in your respective companies to help out.

Lastly, as noted in our Q4 2022, Q1 and Q2 2023 meetings, we agreed to hold an ATA interim meeting later in 2023. The particulars are posted on the ATA email list and the wiki. Many have expressed their recognition of the critical nature of meeting in-person, in particular to work out difficult issues, and formulate approaches to progress and establish new work. The interim meeting allows an additional opportunity to do such, as well as generally foster a productive team working environment. While we will continue to allow remote participation, we strongly encourage in-person attendance of active contributors to leverage these opportunities, especially at the quarterly meetings.

See the Closing Plenary slides for details but above are some highlights.

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

Key BUS documents progress; first USP Summit set to take place

Target: Explore the necessary work for delivering an operator-grade smart home

Outcome: Key decisions on Matter support in TR-181, faster release cycle for USP data models

Building on the successful publication of USP version 1.3 and TR-181 Device:2.16 – both of which form the basis for application-enabled services using broadband CPE – the Broadband User Services (BUS) Work Area continues to focus on delivering an operator-grade smart home ecosystem. The Smart Home Project Stream has been discussing Matter interfaces in Device:2 and IoT communication, setup, and management. Jointly with the WWC Work Area, updates to TR-181 for 5G interfaces, remote management, and updates to the next version of Device:2 (v2.17) were planned.

The Smart Home Project Stream is designed to provide the tools to empower operators to assist in the deployment, management, and interoperability of the consumer smart home. This will be

achieved by leveraging USP (TR-369)/TR-181, as well as introducing requirements and test plans for the network and security capabilities of the smart home devices deployed in subscriber networks. Contact the Project Stream Leads, Jason Walls and Tim Spets, to get involved.

The group is finalizing Wi-Fi performance benchmark metrics for the widely used TR-398 Wi-Fi performance Test Plan (WT-198i3). Once these proposed metrics have been thoroughly tested and approved, the third issue of the specification will promptly follow. Further work also progressed on the development guide for app-enabled services gateways (WT-492) and additions to gateway requirements in WT-124.

The first USP Summit with training sessions, an in-person plugfest, and service provider roundtable discussion will take place in September.

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

TR-383 Amendment 7 is well on track for publication by the end of this year!

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: The Common YANG Work Area is playing a supporting role for the SDN/NFV and FAN Work Areas, with a view that YANG models will be incubated in a series of ongoing projects. We continue to review new functionalities targeting future amendments of TR-383.

Outcomes: Completed Straw Ballot comment resolution of Amendment 7 of TR-383 to cover the required enhancements to support WT-477 with publication targeted by end of 2023; agreed in principle on several new guidelines for OD-360; progressed the description of deployment use cases of Multimedia over Coax Alliance (MoCA) access nodes.

Straw Ballot comment resolution of Amendment 7 of the group's flagship project TR-383 'Common YANG Modules for Access Networks' completed at the virtual meeting. This next amendment includes enhancements to support WT-477 'Disaggregated OLT' and adds several new features and reworks / refactors to some existing functionality. Amendment 7 is on track to be published by the end of the year.

New work is already under way within the context of Amendment 8, including support for Internet Protocol Flow Information Export (IPFIX).

For the long-term maintenance of YANG models, several new guidelines were proposed and agreed for inclusion in OD-360 'BBF YANG Best Current Practices'. These include guidelines for normative statements, document references, backward compatibility, and consistency in the use of certain terms. The proposed guidelines will undergo a two-week review.

The group agreed on the updates to the Multimedia over Coax Alliance (MoCA) Access based architecture, as part of WT-496 'YANG Modules for MoCA Access 2.5 Interface'. The goal is to complete the discussion on the modeling structure and to bring forward and review the associated refactored YANG models by the end of the year.

The Work Area has played a key supportive role for other work areas aiming to develop and publish YANG models. To that end, sessions were held with the SDN/NFV and FAN Work Areas, reviewing items of common interest. This included the proposal for a Broadband Access

Abstraction - Access Device Abstraction Manager, WT-505 'YANG Modules for ONU Management at Scale', and WT-385 'ITU-T PON YANG Modules'.

Moving forward, the group will continue the formal review of the specification of YANG modules for VoIP; this topic will be covered during an interim conference call. This work is intended to be covered in a future amendment of TR-383.

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 drive forward key fiber specs

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 Physical Medium Dependent (PMD)/Transmission Convergence (TC) Layer. Lastly, it is responsible for ITU PON YANG data model specifications.

In Progress: During the Q3 meeting, the following updates occurred across the FAN project streams:

The Unassigned Project Stream reviewed contributions for updating the following architectural documents to include higher speed PON/25GS PON:

- WT-167 Issue 4 'PON-fed TR-101 Ethernet Access Nodes'.

In the Interoperability/25GS-PON/G.HSP 50G-PON project streams, contributions were reviewed for:

- WT-309 Issue 3 'TC Layer Interoperability Test Plan'

- DTP-255 Issue 2 'GPON Interoperability Test Plan'.

In the PON Project Stream, contributions were reviewed for:

- WT-505 Issue 1 'ONU Management at Scale'

- An IEEE liaise response presentation was discussed and agreed to. Future FAN teleconferences will discuss the next steps for the liaise response.

One document in joint collaboration with PHYtx Work Area is proceeding to Final Ballot review:

- WT-301 Issue 2 Amendment 2 'Architecture and Requirements for Fiber to the Distribution Point' (which incorporates requirements for 25GS and HSP).

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

PHYtx Work Area continues the development of the MoCA Access^{TM} Performance Test Plan

Target: To help service providers deploy equipment that will provide better Quality of Experience (QoE) for their end-users.
Progress: The team continued its development of the WT-500 "MoCA Access Performance Test Plan". Straw Ballot of Amendment 2 to TR-301i2 "Architecture and Requirements for Fiber to the Distribution Point" was completed. A new project on Amendment 3 of TR-301i2 was started.

At this meeting, the PHYtx Work Area continued to develop the WT-500: "MoCA Access Performance Test Plan". MoCA Access is one of the technologies that can be used in the scope of Fiber to the extension point (FTTep) deployments as described in TR-419i2. The top-level architecture and traffic configuration of the test platform covering both point-to-point (P2P) and point-to-multipoint (P2MP) use cases was defined. There were many ideas exchanged around the details of the physical layer test setup, addressing the repeatability (calibration), cable topologies (star-tap network) and network elements. The performance test use cases are based on the five predefined frequency plans as used by MoCA.

These frequency plans are:
1. Two bonded MoCA Phy layers (band A-A 400-1675 MHz)
2. Terrestrial TV overlay (band A-B 800-1675 MHz)
3. Mobile services overlay (band A-C 1025-16775MHz)
4. CATV+ DOCSIS 3.0 overlay (band A-D 1125-1675MHz)
5. CATV+ DOCSIS 3.1 overlay (band A-E 1375-1675MHz)

The technical review of Amendment 2 to TR-301i2 was completed. This amendment brings support of recently developed uplink technologies such as XGS-PON, NG-PON2, HSP and 25GS-PON to the DPU.

A new project on Amendment 3 to TR-301i2 was also started during the Q3 Meeting. This amendment will add bulk data collection using IPFIX. This development is being done in close alignment with other Work Areas due to the dependencies on TR-413 (SDN/NFV) and TR-383 (Common YANG).

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 nears completion of three key documents

Target: Define the Cloud-based Central Office (CloudCO) architecture using SDN, NFV, and cloud technologies to support network functions fundamentally redefining the architecture of access and aggregation networks. 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 CloudCO project for virtualized network functions, SDN management and control and domain orchestration capabilities in a broadband network. The main activities currently ongoing are related to the disaggregation of the Access Node and defining the related interfaces. The "Cloud Component" Project Stream is continuing work on Automated Intelligence Management (AIM), Smart SD-WAN and virtual

OMCI.

Three key documents: WT-486, WT-477, and WT-386 Issue 2 near completion.

Outcomes:

WT-477 on Access Node disaggregation is in Straw Ballot comment resolution and is awaiting YANG Module Straw Ballot comments ahead of publication. The related data models to be included in WT-383a7 entered Straw Ballot before the Q3 meeting. In the meantime, the working area discussed possible virtualized functions that could be added to WT-477 Issue 2. The current proposal includes traffic steering and L3 functions. Further inputs are expected before identifying and developing detailed call flows and data models.

WT-413 Issue 2 on 'SDN Management and Control Interfaces for CloudCO Network Functions' is progressing. Previously, the SDN/NFV and Common YANG Work Areas reviewed the approach and agreed to report a detailed list of data models, so that vendors can rapidly discover the data models to be implemented for each access network function. In the current meeting, a contribution covered the interoperability requirements for the NETCONF/YANG protocol. The document is expected to enter Straw Ballot review once WT-477 and WT-486 are completed.

On the Artificial Intelligence and automation fronts, WT-486, which specifies the interfaces for the AIM Framework within TR-436, is close to completion and the group is reviewing comments. An AIM Tiger Team has also been established for reviewing the AIM architectural framework defined in TR-436 in order to include new use cases and gap analysis in WT-436 Issue 2. The baseline text has been reviewed for WT-386i2 on Fixed Access Network Sharing and it has been sent for Straw Ballot comment resolution.

A Tiger Team has been established to review the document on CloudCO interfaces (WT-411i2/WT-454 Issue 2) to include the Access SDN Management and Control northbound interface intent-based interactions, addressing access network topology and abstraction, including inventory. Discussions were held on the data models for device and Layer 1 connections.

Together with the Common YANG and FAN Work Areas, the group analyzed a new project related to abstraction of network devices. The groups need to further clarify the scope and impact on CloudCO interfaces.

The group will be showcasing this year's CloudCO Demo at Network X in October. The topics for this year include WT-477 reference D-OLT Virtual Network Function, Northbound interface exposure of a L2-L3 network abstraction, ONT telemetry over vOMCI, automation test-suite for OB-BAA, IPFIX adapter framework, and vOMCI Plugfest delta features.

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

WWC is beginning new FWA Extension and 5G Phase 18.1 work

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: Work is progressing in two active Project Streams, the 5G Project Stream and IMS for 5G-RG Project Stream, as well as in the FWA extension project.

Outcomes: New set of capabilities and enhancements, subsuming more of the capabilities of the 5G system, with specifications in progress for subsequent publication.

Ongoing work in the WWC Work Area focuses on bringing 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 Work Area continues to incorporate capabilities from the 5G Toolkit into 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, and convergence of voice with the mobile system. This work will allow 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 has completed the technical work for its Phase 3 specifications. TR-457 (FMIF Functional Requirements) and TR-458 (CUPS for 5G Wireless Wireline Convergence) have been published. Both documents expand the deployment options for 5G WWC. A corrigendum for TR-456 Issue 2 has also been published.

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 being finalized on the first issue of WT-493 (IMS for 5G-RG Architecture) and WT-494 (IMS for 5G-RG Residential Voice Requirements), with the Straw Ballot resolution currently in progress for both documents. This key piece of work will converge legacy voice services onto the 5G system.

Phase 1 of the 5G Fixed Wireless Access for multi-tenant fixed broadband (FWA Extensions) project has been completed. Potential scenarios have been identified and solutions discussed. The WWC Work Area is now starting a Working Text on the architecture of this project, and there is a call for volunteers for editors. The document will address scenarios and gaps identified during the study phase, leading to new guidelines and a standardized solution for the industry – an exciting opportunity for BBF members to join and contribute to this new work.

The Work Area has continued accompanying marketing work, including work on two new whitepapers - (MD-470 The Value of WWC) and (MD-506 5G Hybrid Access). The 5G Project Stream is entering its new Phase 18.1 (in conjunction with 3GPP Release 18), and new use cases and opportunities to participate in the BBF WWC work are going to be communicated. WWC will be also represented at Network X.

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

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

OB-BAA publishes Release 6.0, discusses future work and supports latest Forum events in busy quarter

The Open Broadband – Broadband Access Abstraction (OB-BAA) project team published Release 6.0 earlier this quarter.

From June to October 2023, the OB-BAA team has been supporting the vOMCI Plugfest at the University of New Hampshire InterOperability Laboratory (UNH-IOL), where the OB-BAA Software layer was leveraged, as well as its embedded OB-BAA vOMCI software function. Some smaller bugs were identified that are set to be resolved and addressed in the project team's next SW release. The group is also set to support OLT vendors where needed in the end-to-end integration testing in preparation for this year's Network X CloudCO Demo in October.

In June, a discussion took place to identify potential new features and outline the direction of future Broadband Forum open source work in the access domain. The "Cloud-App", based on an open app SDK approach enabling "plug and play" for management software applications, was proposed as a new topic and received positive feedback from the project team. While more details still need to be provided and discussed, this could be incubated within a new project by the first quarter of 2024.

For more information about OB-BAA, visit: https://wiki.broadband-forum.org/display/OBBAA/Open+Broadband-Broadband+Access+Abstraction+Project+Home.

OB-MAP collaborates with BUS and prpl to advance Wi-Fi data modelling

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) is meeting 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. This has impacted progress on prplMesh's Northbound API (NAPI).

There were many recent discussions within OB-MAP and this has led to the creation of a potential new project in the BUS Work Area. This project will extend topology modelling in TR-181, as well as potentially define new IEEE 1905 messages to carry topology data across a premises network.

The OB-MAP project team will continue to collaborate with the BUS Work Area and the prpl Foundation on requirements and feature prioritization, and data modelling of multiple devices and services in a mesh network.

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

OB-USP-Agent swoops in with Heron release

The OB-USP-Agent group is continuing their work on Release 8 (Heron) and is focused on implementing some of the new features released earlier this year in the USP version 1.3 and TR-181 Device:2.16 specifications.

Specifically, the Heron release is implementing features that pertain to enabling software modularization, USP-enabled applications, and the following related concepts:

- The UNIX Domain Socket (UDS) Message Transfer Protocol for communications between processes within the device.
- The Register and Deregister USP Messages that allow a USP Agent to publish its data model paths.
- The USP Broker concepts that form a centralized communications hub for USP Endpoints that reside both inside and outside the device.

These new features will ensure OB-USP-Agent is a key component in open-source middleware solutions (e.g., prplOS and RDK) as it enables the decentralization of a device's data model into USP-enabled containerized applications.

An initial code drop related to these changes is now available in the BBF BitBucket repository for OBUSPA, and the group is aiming to publish the release around 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.

Tenth release of OB-UDPST progresses

Current Progress: The last major release of UDPST, version 8.0.0, is being reviewed and evaluated by the larger Broadband Forum community. The primary new feature in this release was support for multiple test connections (UDP flows) between the client and one or more server instances (i.e., distributed servers). This feature also provides server redundancy and resiliency to busy or unavailable servers.

The OB-UDPST project team continues work on Issue 4 of TR-471 to include the new multi-flow capabilities in the information model. Work to add new parameters to the TR-181 Data Model to support Issue 4 of TR-471 continues.

One potential new feature being evaluated (and available in a test branch) is the metadata export of the received datagram test stream. This would allow detailed post-test traffic analysis beyond the fundamental metrics currently being captured.

We would like to extend our condolences to the family and friends of Al Morton who passed away in June. Al was the OB-UDPST Project Co-leader, important Broadband Forum contributor, esteemed colleague, and friend.

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 team supports BUS data modeling; focuses on alignment and integration of RDK-B architecture

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: Members of the project team have supported the BUS Work Area for improving data models for cellular interface management to establish an RG architecture Technical Report.

The group continues its progress with the architecture, design, and alignment with OpenWRT and RDK-B and gaining clarification of RG deployment scenarios. The team has documented RG deployment, architecture, and modeling aspects. The low-level design including WWCd as a key component and the continued alignment on RDK-B architecture and integration has progressed.

A new development environment has been 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 as a key module, and further improve the test environment. The group intends to begin code development in the near future.

An important next step is the design of a common approach to access SIM-based credentials to develop a Broadband Forum compliant solution covering wired-only 5G-RG, and the group is calling on device manufacturers to support this activity.

There is now an opportunity for interested parties to offer contributions as we enter this key phase of implementation. The project continues to welcome 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

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Welcome to our new and returning members!

We welcomed a mix of new members and guest companies during the Q3 Meeting. We had 143 registered attendees, with 12 first-time attendees and 15 guests

from eight companies.

Our new members include Altibox, Blu-Castle, DKT, NAGRA Kudelski Group, Invigo, ReadyLinks, and SDMC. Boston Omaha Broadband, Brightspeed, Dell Technologies, KT, RIL JIO, SX9 Networks, and Venko Networks were the guest companies in attendance.

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.

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Save the dates! Broadband Forum Meetings and BASe Events

- December 4-7, 2023, Broadband Forum Q4 Meeting, Bangkok, Thailand
- March 4-7, Broadband Forum 2024 Q1 Meeting, Europe
- June 17-20, Broadband Forum 2024 Q2 Meeting, Asia

Take a look at our latest calendar of events here: https://www.broadband-forum.org/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.
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Contact information

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