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 Word from our CEO

As the sun sets on 2019, we find ourselves in Central America for our final quarterly meeting of what has been a successful and important year for Broadband Forum. Panama City has been the setting of our first 'open' meeting, representing another significant milestone in our evolution as we further open the broadband ecosystem.

We have been focused for a number of years on embracing the best of open source and standards development and in mid-October, we voted on amending our by-laws to transform our organization in tandem with the ever-changing broadband industry. This feels like the correct time to make this transition as we continue to take a leading role in ensuring greater transparency and agility. This meeting has also seen the re-admission of long-term member Huawei for active participation in Broadband Forum technical programs and we are delighted to continue our work with this company.

The outstanding progress we have achieved throughout 2019 continued at this meeting with significant work being finalized across all Work Areas. As Open Broadband, the Connected Home and access technology initiatives continue, 2020 will also see the acceleration of 5G as it moves from concept to reality. With Release 16 set to be concluded by Q2 in 2020, we can look ahead to what we can achieve with Release 17, which highlights the role we have played in the development of 5G to facilitate new services.

In addition, the Broadband User Services (BUS) Work Area is aiming to begin certification testing on User Services Platform (USP) at our next meeting and has worked alongside the Wireless-Wireline Convergence (WWC) Work Area to accomplish remote monitoring and control of 5G residential gateways. A final ballot is also approaching for the SDN/NFV Work Area as Issue 2 of TR-370 nears publication. The Physical Layer Transmission Work Area finalized the first technical review of its Gfast performance test plan, four key project streams are rapidly progressing in the Fiber Access Networks (FAN) Work Area and significant progress is being made in the Common YANG Work Area to ensure smoother interoperability for Broadband Network Gateway (BNG) deployments.

As we move into 2020, we should all pause and reflect on the tremendous work over the last twelve months and feel optimistic about what lies ahead. I want to take this opportunity to thank you all for your continued dedication, and I look forward to catching up at the Q1 meeting in Budapest.

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Broadband Forum completes transformation to 'open' organization

Broadband Forum has become an 'open' organization - making all of its work visible to the industry.

broadband forum

The by-law amendment was passed on 14 October and the transition was confirmed at its Q4 meeting in Panama City, Panama. The move reflects Broadband Forum's leadership in ushering in an industry-wide evolution to greater agility and transparency that aims to strike the right balance between open source and standards, further opening the whole broadband ecosystem by continuing to drive interoperability and an open market.

Julie Kunstler, Principal Analyst at Ovum, predicted that Broadband Forum's move to being open would be welcomed by players across the ecosystem of the broadband industry.

"Broadband Forum's shift to a more 'open' organization is a positive one that aligns with the industry trends," she said. "The move should be welcomed by service providers and vendors as it promotes agility and interoperability, keeping pace with the rapid changes across the communications and media industries."

For further information about Broadband Forum's transition, please read the full press release.

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A 2019 recap from our Technical Committee Chair: Monumental progress made across all Work Areas

As 2019 draws to a close, it seems a fitting time to look back at the successful progress that has been made across all Work Areas at Broadband Forum this year. Looking ahead to next year, a number of Work Areas are sending work to straw ballot and getting their work into the final stages, including the first technical review on our vOMCI specifications (WT-451), the requirements and protocol specifications for disaggregated BNG (WT-459), and Gfast performance testing (WT-380).

Helping facilitate adoption and deployment of our USP protocol, we saw the launch of the Open Broadband – USP Agent (OB-USP-Agent) project with its Blackbird Release being wrapped up at the meeting here in Panama City.

At Mobile World Congress 2019, we released the industry's first carrier-grade Wi-Fi performance testing standard (TR-398), which hit the interests of a host of operators and equipment vendors which participated in the drafting of the standard.

April and May saw the publication of the nodal requirements for hybrid broadband networks (TR-378) and YANG data models for management of ITU-T PON (TR-385), that were quickly consumed by our Open Broadband – Broadband Access Abstraction (OB-BAA) project, leading to the Broadband World Forum (BBWF) 2019 demos. The Application-Layer Test Traffic Architecture and Requirements (TR-421) was published in August, with work continuing in the Performance, Experience, and Application Testing area – exciting things are coming, I promise.

There were demonstrations across the Connected Home, Cloud Central Office (CloudCO) and Broadband QED at BBWF, which was the largest number of demos based on Broadband Forum work showcased to the industry at one location at any one time. Way to go team!

It's been a tremendously busy year for the Forum as we finish strongly in Q4. The rapid pace of the Forum's work has been made possible thanks to the dedication of our participants and community, so please join me in "raising a glass" to toast their success and the possibilities 2020 will bring.

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Woman in Telecoms Award for Barbara Stark

Congratulations to AT&T's Barbara Stark who was bestowed with the Woman in Telecoms Award at the World Communication Awards 2019.

This recognized her pioneering role in the development of the TR-069 standard, User Services Platform (USP), and a myriad of additional contributions to the Forum, as well as her contribution and leadership in other global standards organizations.

"I'm honored to receive such a prestigious award for my contributions in shaping the broadband industry, and am humbled to join the ranks of the amazing women who have won this award in the past," said Barbara. "Although awards like this are bestowed upon an individual, they are the result of a great amount of support made possible through organizations like Broadband Forum and AT&T that I've been a part of, and the many colleagues that I've worked with through the years. I'm proud of the difference we've made to the connected world, and this is really an award that recognizes what industry-wide collaboration can achieve."

We caught up with Barbara following the award win in this video interview.

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WWC needs you (if you're a CPE vendor)!

As the WWC Work Area moves forward with specifying a new class of Customer Premises Equipment (CPE) – the 5G-RG – it is calling for CPE vendors to participate in the work.

The 5G-RG will be designed to specifically integrate with a 5G core by employing a 5G signaling stack and possibly providing support for devices using 3GPP procedures in the home. It may also have a fixed WAN interface, LTR or NR WAN interface or both fixed and wireless interfaces for hybrid access.

CPE vendors are required to participate in the project to ensure that the specifications ultimately generated are clear in order to facilitate simple implementation and provide important input and advice in regard to technical choices. Vendors who decide to participate will be given opportunities for downstream deployment options and networking opportunities with other vendors in the WWC ecosystem. As the work evolves, interoperability and certification options will also be explored.

The work already involves major carriers in each of the Asia, North American and European markets.

If you are a CPE vendor and would like to get involved in this work, please contact Work Area Director David Allan at david.i.allan@ericsson.com.

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Ramping up the BASe for a Big 2020!

Following the success of BASe North America in October at ConneXions 2019 and our two large BASe workshops at BBWF 2019 – which combined drew over 500 participants and featured keynote updates from Verizon, Google, CityFibre, BT, Telstra, DT, Vodafone, Telus and SK Broadband – next year

promises to be as busy as ever!

BASe OFC will be kicking off our BASe events for the year in March 2020 in San Diego, California. You don't want to miss out!

If you are interested in sponsoring any of our 2020 BASe sessions and want any more information, please email info@broadband-forum.org.

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Welcome to our new Work Area Directors

Our Q4 meeting saw the appointment of a number of Work Area Directors as we head into 2020.

- Common YANG– Sven Ooghe, of Nokia, and Joey Boyd, of ADTRAN
- PHYtx – Herman Verbueken, of Nokia
- SDN/NFV – George Dobrowski, Distinguished Fellow, and Bruno Cornaglia, of Vodafone
- WWC – David Allan, of Ericsson

We also want to give thanks to Chris Croot, of BT, who has departed his SDN/NFV Director role following the Q4 meeting. Thank you for your hard work and service!

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Work Area Updates from Panama City, Panama

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 creating new ways to connect the world

- **Target:** The Access & Transport Architecture Work Area maintains primary architectural work of 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.
- **Progress:** The study on Carrier Grade Network (CGN) Address Translation for Disaggregated BNG (DBNG) is progressing, two new marketing documents on 5G Transport were kicked off in preparation for conferences early in 2020.
- **Outcomes:** A new marketing document on DBNG benefits to Service Resiliency is in approval, the DBNG technical specification (WT-459) is ready to start approval.

Since the Q3 2019 meeting, ATA has published a record five Marketing Reports on topics including Broadband QED, DBNG, EVPN for Ethernet Services, Application Layer Testing and Hybrid Access.

In the area of 5G Transport, the group continues to progress the 5G architecture and requirements. The requirements introduce the use of new transport and routing technologies, for example, even segment routing, and deterministic transport such as IETF DetNet and IEEE TSN. The group kicked off two new marketing documents that will be progressed during Q1 of 2020 – a market draft on 5G Transport drivers and a 5G Transport tutorial. Those interested are

encouraged to join the conference calls.

In the DBNG project, the group wrapped up the first DBNG technical specification and agreed to consider sending it to start the Broadband Forum approval process (straw ballot). The group also started the approvals process for a paper on DBNG benefits to service resiliency.

The study of CGN for DBNG architectures continues. Those who have expressed interest and have not yet contributed their architecture scenarios to the study are strongly encouraged to do so.

The newly formed Performance, Experience and Application Testing (PEAT) project stream is progressing work on IP performance measurement at the CE-edge using STAMP, Application Layer Testing data modeling, quality of experience testing technical specification and IP capacity metrics and measurement. Significant progress was made in all areas with a scope enhancement to QED to produce technical specification based on the now concluded study, and a new marketing document on IP Capacity Metrics and Measurement.

The group continues its cooperation with IETF, ITU-T, ETSI, and others with a number of liaisons coming out of the meeting. In particular, a liaison that details all the 5G related work of the Forum was sent to the ITU-T Joint Coordination Activity (JCA) IMT2020/5G to complete their roadmap of industry 5G activity that has been compiled over the past three years.

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

USP certification testing on the horizon for BUS

- **Target:** Help service providers control the connected home business model.
- **Progress:** The group has started two new projects: Translation Rules & Tools for YANG Schema Representation of CWMP / USP Data Models (WT-473) and In-Home SDN Configuration & Control (published as part of an upcoming WT-181i2 Amendment).
- **Outcomes:** The group plans to launch certification testing for USP in Q1 2020 and is finalizing work with the WWC Work Area to add device requirements and Device:2 root data model components related to the 5G Residential Gateways.

The Broadband User Services (BUS) Work Area has started two new projects. The first project will result in the creation of translation rules and tools for the generation of YANG schema representations of the existing CWMP and USP data models. This project has huge upside potential as many operators are looking for a YANG representation of the data that traverses their network. The second project will result in updates to the Device:2 root data model to expose SDN concepts for configuration and control of devices within the home network. This project will specifically target the modeling of Open vSwitch (OVS) concepts in the form of the OVSDB database schema being incorporated into the Device:2 root data model, which opens up the management of OVS-based devices to both TR-069 (CWMP) and USP.

Moving forward, the group plans to launch certification testing for USP in Q1 2020. The group is also very focused on finalizing joint work with the WWC Work Area related to the 5G Residential Gateway, specifically as it pertains to adding new device requirements for 5G Residential Gateways within a new release of the TR-124 specification and creating new

Device:2 root data model components for the remote management and control of the 5G Residential Gateway.

Finally, work is also continuing on the next version of the popular Wi-Fi In-Premises Performance Testing suite (WT-398 Issue 2), which will incorporate tests for Wi-Fi 6 (802.11ax) and Multi-AP deployments.

For more information on BUS' ongoing work, visit: https://wiki.broadband-forum.org/display/BBF/Broadband+User+Services.

Common YANG shifts gear to prepare for busy 2020

- **Target:** Specify YANG modules that are applicable to multiple Work Areas, NETCONF/YANG test plans and certification for the defined YANG modules, and maintain YANG Best Current Practices, processes, procedures and tools.
- **Progress:** Agreed on a restructuring of the YANG models for managing bonded DSL lines; continued work on hardware management, xPON power reporting and general improvements of Common YANG models; continued discussion on YANG for managing Broadband Network Gateways (BNGs). Agreed on a new baseline for the Persistent Management Agent Aggregator (PMAA) architecture and YANG Modules.
- **Outcomes:** On track to proceed to Straw Ballot comment resolution after the Q1 2020 meeting for Amendment 3 of the YANG Modules for Fiber-to-the-distribution-point (FTTdp) Management and the Common YANG Modules.

Work on Amendment 3 of the YANG Modules for FTTdp Management (WT-355a3) is progressing very well – the group agreed on a restructuring of the YANG models for managing bonded DSL lines. With this change, we ease the path towards supporting the IETF Network Management Datastore Architecture (NMDA) in the near future.

Work continued on Amendment 3 of the Common YANG Modules for Access Nodes (WT-383a3), which will further enhance the suite of YANG Modules. The main focus this week was on hardware management and xPON power reporting. These developments will meet service provider requirements, enabling additional functionality for network troubleshooting and data analysis for ultrafast broadband over VDSL, FAST and Passive Optical Networks (PON).

Finally, we saw good discussion regarding the definition of YANG Modules for BNGs (WT-460). This work will ultimately result in a set of YANG modules for key BNG functions, for both disaggregated and conventional BNGs, allowing service providers to smoothen interoperability for BNG deployments.

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

FAN makes progress in four key project streams

- **Target:** Inter-Channel Termination Protocol (WT-352) is awaiting additional contributions but will hopefully be concluded by 2020 Q1.
- **Progress:** WT-385 Issue 2 ITU-T xPON YANG, alarm and PM were merged, voice was accepted in principal and IP host YANG was moved WT-383. WT-431 Issue 1 EPON Yang has not progressed.

- **Outcome:** ID-247 issue 4 is going through straw ballot resolution period and we are hopeful it will be completed out of the Q4 meeting. WT-280 amendment 1 is progressing and we will examine whether we go to straw ballot out of Q4.

Since the Q3 2019 meeting, the Fiber Access Networks (FAN) Work Area has made progress in four of its key project streams.

The PON Management Project Stream is dedicated to the development of NETCONF management models for ITU-T and IEEE PON YANG models as described above.

Within the Interoperability and Test Project Stream, work continued on the Optical Network Unit (ONU) interoperability and certification test plan (ID-247), as described above. Issue ID-247 Issue 4 focused on 10G PON will conclude straw ballot number 1. FAN is working on WT-309 Issue 2 Amendment 1 PON TC Layer Test Plan.

Within the Unassigned Project Stream, FAN has also progressed WT-280 Amendment 1 PON in the context of TR-178 requirements. Out of Q4, the group will examine whether it sends it to straw ballot.

Within the Wavelength Mobility Project Stream, FAN has received many contributions in the Q4 meeting, and will continue examining whether to send it to straw ballot in Q1 depending upon the progress made this week.

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

OB-BAA adds its multi-vendor, SDN capabilities to the Broadband Forum's CloudCO showcase event

At this year's BBWF, the Open Broadband – Broadband Access Abstraction (OB-BAA) project showcased it's multi-vendor, multi-protocol adaptation, zero-touch and automation capabilities of the CloudCO BAA layer which showed how the BAA layer is used to automate zero-touch service creation, activation and relocation.

It also demonstrated how the BAA layer accelerates migration to cloud-based access networks by expanding the breadth of vendors by leveraging its ability to facilitate co-existence, seamless migration and adaptation to an increasingly wide variety of software defined access technologies and implementations. Building on the success of BBWF 2019, the OB-BAA team is adding new SDN capabilities to the BAA layer that eases the reporting of alarms and collection of performance data from access nodes which is scheduled for release in February 2020.

A video interview featuring perspectives from Mauro Tilloca of TIM, Broadband Forum Board member and a key service provider participant in CloudCO/OB-BAA demo, can be seen here.

A video summary of OB-BAA progress to date and plans for the future from BAA leader Tim Carey can be seen here.

OB-MAP defines high level architecture for topology database

The Open Broadband – Multi Access Point (OB-MAP) project together with prplMesh has defined a high level architecture that will allow OB-MAP to provide a whole-network topology database and allows for definition of a third-party controller. The project is now working on the details of three sets of APIs: between prplMesh and a controller, prplMesh and the topology database and the controller and topology database. In addition, we are working on the detailed

design of the database. The database will enable granular control and troubleshooting of the local network.

The project also continues to ensure that all physical layer technologies are supported in the context of the database and network topology.

In the future, OB-MAP expects to produce vendor extensions to the IEEE 1905.1a specification that will provide carrier-grade capabilities enhancing EasyMesh operation in operator deployments. Once these are done, we will also deliver certification requirements for these BBF extensions that would lead to a certification program.

Physical Layer Transmission publishes new Technical Recommendations on VDSL2-LR, reaches major Gfast performance test plan milestone

- **Target:** To help service providers deploy equipment that will give a better quality of experience for their end-users.
- **Progress:** The Physical Layer Transmission group finalized the first technical review of its Gfast performance test plan, as well as, adding new use cases to fiber access extension over existing copper infrastructure.
- **Outcome:** Four documents have passed final approval and have been published on the Broadband forum website. They are TR-114 Issue 3 Amendment 3, TR-115 Issue 3 Amendment 2 and TR-249 Issue 2 which all relate to VDSL2-LR (Long Reach) and TR-208 Issue 3, covering the Performance aspects for In-premises Powerline Communication Systems.

VDSL Long Reach greatly increases the reach of VDSL, allowing the operator to have more deployment scenarios and replace the legacy ADSL.

The test framework of WT-380 (Gfast performance test plan) focusing on single line tests has passed its first technical review. This test framework enables the Work Area to start the measurements for setting the Gfast performance requirements, targeted to finalize during the first quarter next year. The next step is to define the test framework for multi-line performance measurements.

The next revision of the Gfast certification test plan is on its way. This revision now includes certification of software download, while operation with dynamic time assignment (DTA) improves the response times of the Gfast connection and verification of the accuracy of test parameters is approaching. First implementations of DTA have already been undergoing tests at the latest Gfast plugfest.

Projects WT-419/SD-419 further detail use cases and requirements for extending fiber access over existing local copper infrastructure. This work will help telecoms operators to offer fiber-like speeds on their existing copper infrastructure where the installation of fiber is not yet economical.

To gain further insight into what the Physical Layer Transmission Work Area is doing, visit: https://wiki.broadband-forum.org/display/BBF/Physical+Layer+Transmission.

Issue 2 of TR-370 nears publication

- **Target**: To drive the migration of SDN and NFV into broadband networks to facilitate the agile deployment of new customized distributed broadband services and applications.
- **Progress**: vOMCI (WT-451) has progressed to a position where we are ready to go to straw ballot. Straw ballot resolution is virtually complete for TR-370 Issue 2 with only a few homework items left to agree on.
- **Outcomes**: We have moved forward significantly on WT-436 – Automated Intelligent Management (AIM) Project Stream, specifying how the Access and Home network will utilize AIM in the CloudCO context and other deployment models.

The SDN/NFV Work Area now has ten separate projects in flight following the approval of the latest Metro Compute Network document. This work requires an editor in order to progress, if there are any interested parties, please contact the Work Area directors.

Progress has been driven by a tiger team on CloudCO Migration topic (WT-408) addressing the gaps with the objective of going into straw ballot following the Q1 meeting.

For WT-436, the group has reviewed various external bodies' framework and agreed to include the best parts of each of these into the working text.

On WT-451, the group is still working towards a Plugfest to validate and this will drive the timescales for publication of this document.

We should complete final ballot before the next meeting for Issue 2 of the Fixed Access Network Sharing (FANS) (TR-370). This updated document adds cloudification into the Fixed Access Network Sharing (FANS) process and aligns the document with the CloudCO framework, as defined by the SDN/NFV Work Area.

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

The group also says farewell to Work Area Co-Director Chris Croot, of BT, and welcomes Bruno Cornaglia, of Vodafone, into the position.

OB-USP-Agent wraps up work on Release 2

Recent Accomplishments: OB-USP-Agent wrapped up its Release 2 (Blackbird Release) in mid-October, just before BBWF 2019.

Current Efforts: Since BBWF, the project has been working on a 2.1 Release (a minor update to the Blackbird Release), which resolves some minor issues and implements some additional features that the group wanted to wrap-up before starting our next major release.

Future Plans: At the start of the year, the project will begin planning its next major release, including its features and timeline.

Work on 5G FMC progresses with work on Release 16

- **Target:** Address 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.
- **Progress:** The Wireline-Wireless Convergence Work Area

(WWC) is aggressively looking to complete populating the documents that will provide the normative specifications for the equipment that will connect wireline to the 5G core and the CPE it will serve. The area's target is to substantially have the work for Release 16 complete by year end, and the documents finalized and published early Q2/2020.

- **Outcomes:** Complete solutions to Fixed Mobile Convergence (FMC) will be delivered in the Release 16 timeframe as originally planned.

Work in the WWC Work Area is now increasingly focused on finalizing the technical details that require specification, addressing the needs of converged operators with both wireline and mobile networks deployed who are in a position to leverage all their assets with combined subscriber offerings. This work will allow converged operators to provide a uniform experience to their customers irrespective of the access or appliance they are using. This will be supported by a common and streamlined back office and control plane.

Broadband Forum and 3GPP are now deeply engaged in ensuring the myriad of technical details required to generate detailed specifications are addressed. This is in respect to CPE network equipment and changes to the 5G core.

Broadband Forum is taking an important role in developing 5G, making recommendations for the connection points between the fixed and 5G mobile core networks in order to drive core convergence. At this point in the FMC work, the group has shifted from making decisions to documenting the decisions.

Joint sessions were held across the Technical Committee examining other aspects of 5G where Broadband Forum's expertise could be applied. In particular, with BUS, which saw the go forward plan to execute CPE changes for FMC firmed up. This will enable USP, and its predecessor, TR-069, to contribute to the value proposition of FMC and 5G.

WWC is deeply engrossed in the normative phase of this work, with the specifications set to be published in Q2/2020.

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

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Welcome to our new and returning members!

Methode Electronics, National Information Solutions Cooperative (NISC), Reply, and VCTI were an array of new members announced at Panama City alongside returning member, Sparnex Instruments.

In addition, Broadband Forum was pleased to welcome IPLAN, Lambda Networks, ThinkBig Networks and Vitruvi as special guests in Panama City.

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. 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 a video interview of Rhonda Heier, Membership Development Manager, here. She can also be reached at rheier@broadband-forum.org.

Broadband Forum in the news

It has been a busy end to the last quarter of 2019, with Broadband Forum accelerating operators' journeys to standardized and interoperable Connected Home and Wi-Fi management with USP 1.1 and BBF and UNH-IOL Gfast certifications continuing to grow.

At BBWF 2019, Broadband Forum demonstrated the latest developments in its CloudCO and OB-BAA, while Broadband QED gained significant industry traction following three high-profile demonstrations.

AT&T's Barbara Stark also secured the coveted Woman in Telecoms Award at the World Communication Awards 2019 for her contributions to the Forum, including her pioneering role in the development of TR-069 and USP. In addition, a new agreement between Broadband Forum and the Open Networking Foundation (ONF) set forth how operators can use virtualization to enable seamless co-existence and ease migration to automated access networks.

Networking Plus hosted an article by CEO Robin Mersh on how Broadband Forum is laying the foundations for a 5G future and how it is bringing opportunities and challenges to the telecoms industry. An article with Mersh on automation was also published in the Fibre Systems Yearbook 2020, highlighting how network architecture must evolve to become more agile, flexible and efficient.

Events Calendar

2020 Broadband Forum Meetings

- Q1: March 2-5, Budapest, Hungary
- Q2: June 15-19
- Q3: August 31-September 3
- Q4: December 7-10

Sponsorship opportunities are available for Broadband Forum's 2020 quarterly meetings.

Sponsoring a meeting 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.

Other dates for your diary:

- Convergence India: February 19-21, 2020, New Delhi, India
- OFC: March 8-12, 2020, San Diego, USA
- China SDN/NFV/AI Conference: April 15-16, 2020, Beijing, China
- FTTH Conference: April 21-23, 2020, Berlin, Germany
- Broadband World Forum: October 13-15, 2020, Amsterdam, The Netherlands

Contact information

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