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

A Word from our CEO

As we end another quarterly meeting, I am once again impressed not only by the amount of work being undertaken within the Forum but also by the scope of it. From 5G, CloudCO and USP to hybrid networks and collaboration with other standards bodies, there is no doubt the impact and relevancy of our work is greater than ever.

This is certainly true of the NTT-sponsored demonstration which showed the disaggregation of time-critical PON functions. This is truly a 5G milestone, with the approach eliminating the need for operators to rebuild an Optical Line Terminal (OLT) from the preliminary stage of development and accelerating time-to-market for new offerings such as fronthaul for 5G and services for business users.

The concept of 5G brings with it the likelihood of increased fixed and mobile network convergence. This means it is more important than ever that our work is aligned with other standards bodies' efforts – which is exactly why the joint workshop between the Forum, FSAN and ITU-T took place at the end of this meeting. Featuring discussions around future expectations, NG-PON deployment plans, ONU certification, virtual OLT standardization, Passive Optical Network (PON) convergence and the Broadband Access Abstraction project, industry-wide collaboration like this will ensure the interoperability we are enabling does not end at a certain point in the network but encompasses the whole architecture to create an open broadband infrastructure.

The ongoing work within each and every group will significantly contribute to this and it is clear momentum is gathering in many areas. 5G saw progress around network slicing, a use cases and scenarios document has been published in relation to CloudCO, and USP is evolving to incorporate advanced features which will ultimately deliver a seamless experience for end-users. The ongoing work around 5G will receive a further boost at an Interim meeting held by the Routing and Transport and Wireline-Wireless Convergence Work Areas in Paris from July 9-11. A new project has also been launched which will see the Forum begin to focus on hybrid networks. This work will look to ease the complexity and cost of deployment for operators, as well as enhance end-user experience.

With so much going on, it is important we evaluate the value our work brings to the industry and what the next steps should be. As such, a strategy workshop will be held in Berlin as a follow up to our Interim Meeting in Atlanta in 2016, to which we will invite key executives to take part. This will be immediately followed by Broadband World Forum, where members are invited to take part in our Interop Pavilion and showcase their innovations to the wider industry.

As always, it is you, our members, that remain the driving force behind all our achievements which leads me to another important development; Lincoln Lavoie will fulfil the role of Technical Committee Chair. This is a role which requires vision and leadership and I am sure you will join me in wishing Lincoln luck as he builds on the progress already being made.

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A word from our Technical Committee Chair Lincoln Lavoie, of UNH-IOL

As the newly elected technical chair of the forum, my first job is to give a big thank you to our previous chair Michael Fargano, who retired in May – and is now keeping his grandchildren inline instead of us Forum participants.

The organization I'm taking over from Michael has made huge progress: establishing our open source projects, creating industry councils to help craft messaging about our technologies, streamlining our work process, and introducing new tools to encourage collaboration both during and between our meetings.

Looking to the future, I am excited about our opportunities and upcoming work. Projects in the pipeline, and those ongoing, really expand our work into new areas, including 5G, Wi-Fi, CloudCO, where we are growing a set of application notes around the architecture, an improved device management and control protocol (USP), and more data models than is probably good for any one human being to consume. This work supports our vision for the evolution of Broadband Networks, answering the growing demands from IoT, 5G, and cloud-enabled broadband.

Personally, I have also set some goals for how I hope to support the Forum over the next year (or so). I would like to grow our offline collaboration, enabling participation across our global participant base without participants having to dial into teleconferences at all hours of the day. Additionally, I hope we can continue to grow our open source efforts, bringing in new developers and collaborations with upstream projects.

So, without further ado, let's get started and I'll see you online and at our Q3 meeting in Montreal, Canada.

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Broadband Forum hits 5G milestone

Operators looking to quickly and cost-effectively deliver new 5G services are a step closer to being able to do so, as the Broadband Forum and NTT successfully demonstrated the disaggregation of time-critical PON functions.

Launched with NTT last year, the PON Abstraction Interface for Time

Critical Applications (TCAs) project looks at how Software Defined Networking (SDN) and Network Functions Virtualization (NFV) can be applied to Optical Line Terminals (OLTs) to eliminate the need for operators to rebuild an OLT from the preliminary stage of development, for example, a remake of the PON chip, which requires a large amount of investment. Time-to-market for new offerings, including support for 5G fronthaul interfaces and services for business users, is also accelerated.

The quick progress the project has made was showcased for the first time on the last day of the Broadband Forum's Q2 meeting, where NTT demonstrated two scenarios – mobile and FTTH – where a future OLT could be optimized with Dynamic Bandwidth Allocation (DBA)

software to significantly reduce latency to meet the stringent latency requirements of 5G fronthaul interfaces. This enables dense small cells to be accommodated cost-effectively by TDM-PON. A second DBA software could also be applied to OLTs in FTTH services that require high bandwidth efficiency.

"Time Critical Applications are essential to meet changing user behavior," said Akihiro Otaka, Executive Manager at NTT Access Network Service Systems Laboratories at NTT. "The demonstration we have carried out at the Broadband Forum meeting is a significant step for the project as it shows how operators can cost-effectively upgrade OLTs via a software upgrade. Standardization in this area is essential as it will achieve a vendor-agnostic system and ensure mass deployment which is key to realizing agile and flexible next-generation broadband networks and the delivery of 5G."

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Hybrid Access Technologies CEO calls for industry to come together on hybrid networks

Hybrid access has huge potential, but there are commercial and technical restraints that need to be overcome to make it a success. This was the message delivered by Paul Evans, CEO of Hybrid Access Technologies, during a keynote presentation organized by the Innovation Group as part of the Forum's Q2 meeting.

Citing the key drivers for hybrid access as being faster broadband, Government targets, reliability and competitiveness, Evans began the discussion by listing the current commercial constraints faced. According to Evans, these include an onus on operators to offer unlimited mobile data, expensive Customer Premise Equipment (CPE), and complex and expensive back-end integration. All of these elements, said Evans, can kill the value proposition for hybrid access which is why it has not yet been the success it could be. In addition to this, continued Evans, there are also several technical limitations to overcome.

Evans went on to outline the requirements hybrid access would need to meet in order to make it a viable option for operators. These include driving down the CPE cost, support of all protocols, per-customer IP addresses and various ways to regulate data usage. In addition, said Evans, the solution should be Over-the-Top (OTT) and have a single management interface.

Concluding his presentation, Evans called for a common back-end infrastructure and interoperable vendor equipment to enable multi-part CPE where required. Following discussion with the Broadband Forum a New Project Initiation Form (NPIF) will be submitted to kick-start work in this area.

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Three-quarters of global fixed broadband subscriptions are now fiber and cable

Fiber and cable networks are now servicing 77% of fixed subscriptions, new figures from Point Topic have revealed.

According to the Global Broadband Statistics, which take into account subscriptions up to the end of 2017, more than 50% of people in more than 40 countries, including Singapore (97%), China (89%), United States (87%), and the UK (55%), are connected via full-fiber, fiber-fed copper or cable.

Point Topic Research Director Dr Jolanta Stanke said: "We are finding that customers across most global regions increasingly prefer faster broadband services delivered over fiber and cable platforms, as opposed to ADSL. This trend will continue as more bandwidth-hungry young consumers become paying decision makers, even though superfast 4G LTE and 5G mobile broadband services will compete for their wallets."

Fiber-fed subscriptions – including Fiber-to-the-Home (FTTH), Fiber-to-the-Building (FTTB), Fiber-to-the-Cabinet (FTTC), Very High Bitrate Digital Subscriber Line (VDSL), VDSL2 and Gfast – accounted for 57% of broadband subscriptions, with more than 530 million connections. Stanke agreed VDSL and Gfast were together largely responsible for the growth that fiber has seen, with more than 30 operators across all continents deploying or trialing Gfast.

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Broadband Forum to host executive summit ahead of BASE Las Vegas

A dedicated Broadband Forum executive workshop on broadband strategy will be held with invited key executives ahead of Broadband World Forum 2018.

Taking place in Berlin on the morning of Tuesday, October 23, the session will focus on the issues currently sparking debate in the broadband industry, with a number of operators expected to present their vision. The event is a follow-up to "The Future of Broadband" meeting held by the Forum in 2016, following which it made a number of significant changes to how work is carried out and prioritized.

Anyone who wishes to attend can request an invitation by emailing rheier@broadband-forum.org. Members are also invited to exhibit at Broadband World Forum as part of the Forum's Interop Pavilion.

Across the pond, Open Broadband, Access, 5G, cloud and the connected home will be on the agenda when the next BASE event takes place – with the call for speakers and papers open until the end of June.

Taking place at the Encore Hotel, in Las Vegas, on Sunday, October 28, BASE Las Vegas will see a series of educational presentations delivered by companies from the whole of the broadband ecosystem, including operators, service providers and equipment manufacturers.

The event follows BASE Athens, which was held in March and attended by more than 300 people, with 98% of attendees saying they would attend another event.

Bernd Hesse, Chairman of BASE and Senior Director of Technology Development at Calix, said: "BASE delivers a new perspective on what is being created for broadband providers and end-users alike, delivered by the leaders in the industry, many of whom are active participants in the Forum's work. Following the success of the previous events, we are confident BASE Las Vegas will be a huge success and we look forward to hearing about the latest innovations being worked on."

For more information, including how to apply to speak at BASE Las Vegas, please visit: https://www.broadband-forum.org/news-events/events-webinars/base-events-home

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Work Area Updates from Osaka, Japan

Architecture and Migration Group testing initiative gathers pace

Work on the initial deliverable for the Application Layer Testing project has started in earnest. Several Application Classes have been proposed and agreed, along with a number of Testing Use Cases. The project's intention is to deliver the industry's first standardized application layer test of the modern era and to create an open source traffic generation tool that will allow both operators and vendors to generate aggregated traffic patterns to validate equipment and investigate network performance under a variety of conditions.

The different use cases have demonstrated the potential breadth of applicability of this tool, ranging from investigating the long-term stability of Residential Gateways, through testing the performance of individual access nodes, to taking a wider view across backhaul and aggregation networks. In addition to network testing, a new type of use case has suggested that the same tool could also be used for network dimensioning planning.

There was agreement to start work on a new version of the Fiber-to-the-Distribution Point specification (WT-301) that involves using multipair bonded Gfast itself as the backhaul for Gfast customer connections in order to help reduce the cost of increasing Gfast coverage.

The joint study with the Physical Transmission Layer Work Area on use cases for the repurposing of existing premises infrastructure - such as coax and twisted pair - to distribute high-speed fiber access throughout a building - also continues to make great progress. The initial collecting of use cases is nearly complete, and attention has now turned to amalgamating these cases where appropriate to streamline the study. A set of issues that are particular to point-to-multipoint topologies has been documented.

Finally, work on efficient multicast delivery carried out in conjunction with DVB is now starting to ramp up following the availability and sharing of their architecture with the Forum. The groups will now focus its attention on how to divide the work up between the two bodies.

Momentum gathers around Open Broadband

In July 2018 – just seven months since it began – the Forum's Open Broadband-Broadband Access Abstraction (OB-BAA) project will release its first reference implementation of the Forum's CloudCO BAA layer to the broadband industry. This document pulls together both new access node designs and already-deployed access device types to be provisioned, controlled and maintained by SDN Management and Control systems. By doing this, the BAA layer reduces the risk of introducing new technologies or individual products and allows investment in new systems and services to be incremental.
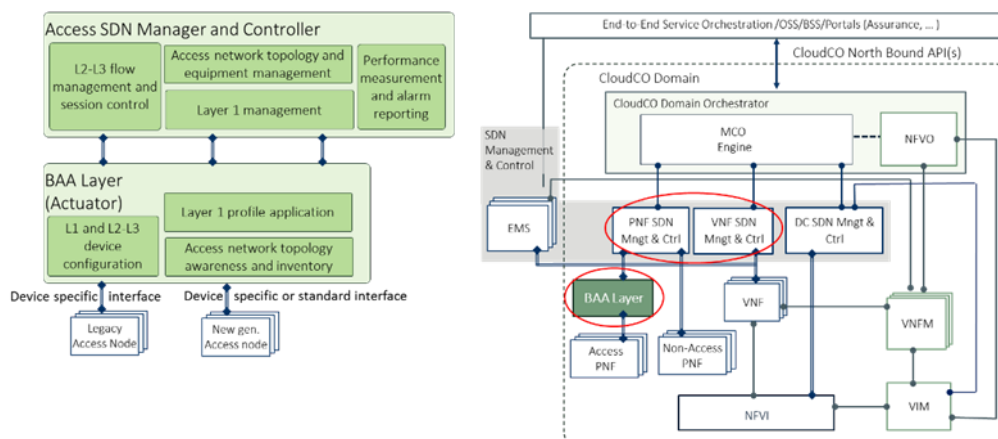
There are now 11 member companies participating in the project, including service providers, equipment vendors and testing facilities, following three new participants since Q1. This demonstrates the Broadband Forum's and industry's commitment to an open, standardized broadband ecosystem that combines open source practices with standardized solutions such as CloudCO.

Meanwhile, OB-Starfish is an Open Broadband collaboration project that creates a telecom Infrastructure as a Service (IaaS) standard across the NFV ecosystem. It enables a new style of agile provider business service via APIs and portals that instantly transforms previously static and often proprietary network assets into revenue-generating, cloud-based, user-managed objects that can be easily bought and sold.

The OB-Starfish project does this by combining and aligning the implemented de facto industry cloud standards. The project has been working with the lead editors from the DMTF Redfish team (de facto host API), OASIS TOSCA team (de facto orchestration templates), the Inter-Carrier team (common language standards for ordering), and the IETF Yang team (de facto network resource models). The implemented standards enable users, providers, vendors, and equipment makers to create a single resource model that is deployment-ready for hosting, orchestrating, productization (buying and selling), based on common industry standard models - such as the Forum's USP platform resources.

The project is now putting some final touches on aligning a common topology language between the implemented standards and should finalize the "user managed object" in the next quarter.

Additionally, a new standalone Open Broadband software project has been launched - Open Broadband Multi-Access Point (OB-MAP OSS). This project is part of a joint collaboration between the prpl Foundation and Broadband Forum. The objective is to develop an open source and portable carrier-grade Wi-Fi infrastructure that can maintain the delivery of services through the whole home to mobile and fixed terminals with the necessary quality of service. The project was just approved by the Board of Directors and a kick-off call with interested members will happen in the next few weeks.

BUS continues to evolve USP and improve customer Wi-Fi experience

The Broadband User Services (BUS) Work Area is finalizing version 1.0.1 of its new User Services Platform (USP) (available at http://usp.technology) which adds some minor clarifications based on the results of the most recent plugfest. The next plugfest on this evolutionary protocol is scheduled to take place during the week of September 17, 2018, at the UNH-IOL, with registration details due to be released soon.

The group also explored some of the next features to be added to USP, including proxy support and a REST interface for applications to integrate with USP controllers. The group is also reaching out to organizations involved in standardizing the IoT and Wi-Fi data objects to incorporate these advanced features into the USP data model. Additionally, it is working on producing new data model objects for Wi-Fi mesh systems that work with the rest of the Device:2 data model for CWMP and USP.

Work in the Wi-Fi In-Premises project continued on WT-398, the definition of Wi-Fi performance metrics, to assist in providing improved customer experience for end-users. Some of the final cases were proposed and the group is poised to move towards Straw Ballot soon. Work also continued on installation and diagnostics (SD-401) and the definition of video performance metrics (SD-410).

BUS also made strides in defining a set of security requirements for home gateways. New vulnerabilities in deployed CPE are being discovered every day, so the group is enhancing its TR-124 requirements document to give providers a clear way to set standards for their vendors.

For more details about the work being carried out by BUS, please see: https://wiki.broadband-forum.org/display/BBF/Broadband+User+Services

Two common YANG projects approved for publication

Common YANG Modules for Access Nodes Amendment 1 (TR-383) and YANG Modules for Management of G.hn Systems in Fiber-to-the-distribution-point (FTTdp) Architecture (TR-374) were approved for publication by the Forum members. The Technical Reports and associated YANG modules will be published in the coming weeks. In regard to WT-383, new data models were added for layer 2 multicast as well as further enhancements to forwarding and Quality of Service. The ultimate aim is to provide a complete set of standardized YANG modules to manage access nodes and this technical report and associated YANG modules further that goal as the group continues to fill in the gaps.

WT-383 continued forward momentum via contributions towards Amendment 2, focusing on ANCP, alarm management, performance management and fulfillment of TR-301 Issue 2 requirements for the management of temperature sensors. Regarding performance management, discussions have begun to look at emerging applications such as virtualization and the impact of requirements on the collection of performance data outside the 15 minute and 24-hour interval collection that have been typically required in telco applications. From these discussions, new YANG modules will be created which will realize these requirements.

Review and resolution of all technical straw ballot comments for YANG Modules for FTTdp Management Amendment 1 (WT-355) also took place with the editors taking on the responsibility of incorporating the resolutions along with the editorial comments to progress this amendment to publication in Q3. This Amendment adds reverse power feeding support for Distribution Point Units (DPUs) and updates existing models to align with the latest revisions of underlying ITU specifications.

Lastly, a contribution towards Persistent Management Agent Aggregator (PMAA) Management Model (WT-393) has ignited further discussion towards defining the Northbound Interface (NBI) used to manage a PMAA. The end goal is to have a defined interoperable interface at the NBI PMMA for operators to leverage.

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 adds EPON YANG development to its work

Since the Q1 meeting in Athens, the Fiber Access Networks Work Area has been busy progressing a number of documents.

The ballot for the Functional Model for PON Abstraction Interface project (WT-402) closed prior to the meeting and has proceeded to comment resolution. This work aims to standardize how operators use network virtualization technologies upgrade their PON networks to enable the rapid introduction of new services that require time-critical

functions like Dynamic Bandwidth Allocation (DBA) without the need to create new chip sets. It is needed because operators are looking to provide additional value or differentiated services to meet the trend towards more diversified network requirements, particularly where the network is used as business infrastructure.

NG-PON2 TC Layer Test Plan (WT-426), Issue 2: XGS-PON TC Layer Test Plan (WT-309) and PMD Layer Test Plan (WT-423) are also moving forward. WT-426 defines a set of test cases with the purpose of verifying interoperability between an NG-PON2 TWDM OLT and a BBF.247-certified Optical Network Unit (ONU), while WT-309 aims to verify interoperability between an XG-PON or XGS-PON OLT and a BBF.247-certified ONU. WT-423 is for operators that plan to use ITU-T XG(S)-PON (with or without XG-PON) and documents a Physical Media Dependent (PMD) layer test plan for Conformance Events and NG-PON2. All three documents are expected to proceed to straw ballot following the Q3 meeting in September.

The group has also agreed to add EPON YANG development to the FAN group and will create an NPIF to launch this work. EPON YANG will be based on appropriate YANG models already developed within the Forum and IEEE. Finally, the group has decided to use the nctool for NETCONF interop testing and has started reviews of three test plans.

For the latest updates from the FAN Work Area, please visit: https://wiki.broadband-forum.org/display/BBF/2018+Q1+Interim+Meetings+-+Fiber+Access+Networks+Meeting+Minutes

Innovation Group hosts key presentations on the future of hybrid access

The innovation group hosted a keynote presentation on an application which runs on CPE to allow different service policies within the home network and give the end-user some freedom to prioritize services. This proposed solution is targeted towards currently deployed CPE. The Forum expects a proposal to be made on this work at the upcoming Q3 meeting.

A Birds of a Feather (BoF) session will be hosted during Q3 on broadband access powering, with several speakers due to present. The aim of the session is to gain different perspectives on the future of powering and reverse powering of new broadband access equipment and what this means for the Forum's work.

To learn more about the Innovation Group and its work, please visit: https://wiki.broadband-forum.org/display/BBF/Innovation+Group

Physical Layer Transmission continues Gfast progress

The group continued to work on issue 2 of ID-337 (Gfast certification), with the goal of going to Straw Ballot from a June conference call. Issue 2 addresses 212MHz operation, Gfast over coax (profiles 106c and 212c) and increases the performance requirements.

The group progressed work on issue 2 of the Reverse Power Feed (RPF) draft while work has already started on amending new test requirements into recently released issue 1.

At the Q2 meeting, progress was made on WT114i3a3, Long Reach VDSL2 (VDSL2-LR) performance testing, and WT-249i2 (Vectoring) to which the 35MHz profile was added.

Refinement of test set-ups and test cases were made to polish the Wi-Fi performance document (WT-398). The next step is to converge the requirements for the metrics in order

to finalize the first issue.

Work continued jointly with the Architecture and Migration group on SD-419, which addresses use cases for extending fiber access over existing in-premises infrastructure. Multiple use cases were addressed and the process of consolidating use cases was started.

Work progressed on the "Infrastructure for testing mitigation of interference between Power Line Communications (PLC) and Digital Subscriber Line (DSL)", also known as WT-425. An architectural overview of the required setup was analyzed.

Work on SD-415 (MGfast) was also launched, with the addition of initial service provider requirements.

Gfast plugfest dates for the remainder of 2018 have now been set. The plugfests take place at the UNH-IOL laboratories in New Hampshire from August 20th-24th and November 5th-9th.

However you slice it, it comes up transport

In addition to progressing the deliverables for R&T, there was considerable discussion on network slicing for 5G networks and transport support of 5G networks. Network slicing has been studied in the Wireline-Wireless Convergence (WWC) Work Area for some time in the context of Fixed Mobile Convergence (FMC) and the first framing of normative specification is beginning in the R&T Work Area. Network slicing will give operators the ability to dedicate resources to specific services and customers. In bringing dedicated resources to services and customers, it will allow resource and performance-sensitive services to be offered on a single network. For example, the same network can be used for Internet access and remote surgery. All of this should enable new revenue generating services, while optimizing the efficiency of the network they are provided over, lowering CapEx and OpEx.

Billions of dollars have been invested into many transport technologies and network types which are currently deployed globally and offer important revenue-generating services, including the support of existing mobile networks. Because of the variety of technologies and network types, there is "no one size fits all" or "silver bullet" solution for applying network slicing to the transport network environment. Mapping what is required for 5G network slicing to the transport network space is a non-trivial problem and requires consideration of many aspects. For example, any network slicing solutions the Forum creates must leverage what exists; 5G should not involve forklifting transport networks. Investment in existing networks must be protected. At the same time, there are emerging technologies under development in the IETF, IEEE and ITU-T Study Group 15 that will be needed to address the new 5G envisioned performance demanding services. For example, technologies such as IEEE Time Sensitive Networking (802.1CM) and IETF's Deterministic Networks (DetNet) will be key to what is needed to support services requiring low latency and highly predictable quality of service.

There is good news! Existing technologies, such as Ethernet, Multiprotocol Label Switching (MPLS), Internet Protocol (IP) and Optical Transport Network (OTN), have data identification and isolation mechanisms that have been used for decades. These ensure that a customer's data is restricted to only that customer and that operators' Service Level Agreements are not interfered with by other customers using the same or different services across a range of performance demands. Many of these existing and proven mechanisms can be used to facilitate network slicing as envisioned by NGMN, 3GPP and others for 5G networks. This is particularly true in the near term and for the bulk of performance tolerant data services going forward.

The emerging technologies mentioned above – jointly referred to as deterministic transport - for example, IETF DetNet and IEEE TSN, can then be integrated into the existing transport networks as technologies mature and consumer demand for applications requiring the high performance and characteristics they enable grows.

The Forum is not developing transport network slicing support in a vacuum. It is engaged with 3GPP SA2 and SA5, MEF, IETF, ITU-T Study Group 15 and IEEE to use industry-wide, globally-adopted technologies, thereby creating industry-wide, globally-adoptable solutions.

In addition to network slicing, Ethernet Virtual Private Network (EVPN) Phase II architecture and requirements work has progressed to final approval and the 5G Transport architecture scope and drivers is evolving.

Flex Ethernet / MPLS work, (SD.FlexEMPLS45G) also progressed, in particular highlighting the market drivers and motivation for not only Flex Ethernet, but also for all deterministic transport technologies.

Coming up in the next few months, the Routing and Transport Work Area will join WWC in Paris for the July interim meeting to host a 5G Transport webinar on Wednesday, June 27, 2018. To register for the webinar, please visit https://www.broadband-forum.org/events.

For more information about the Routing and Transport Work Area's projects, please see: https://wiki.broadband-forum.org/pages/viewpage.action?pageId=4620746

Momentum around CloudCO grows as use cases are published

CloudCO enables service providers to evolve towards an IT-driven paradigm of service delivery to gain unprecedented programmability and openness, as well as automation and network control to build highly scalable, flexible networks.

The Q2 meeting saw good progress, including the publication of CloudCO Use Cases and Scenarios (TR-416). This document complements the CloudCO architectural framework and helps generate new revenue-driving services that are part of the Open Broadband initiative. It elaborates a range of cloud-based applications/use cases, how a broadband subscriber would access cloud services offered by a broadband cloud service provider and how data centers as computing resources would be interconnected within a broadband network using the CloudCO architectural framework.

The first set of Application Notes are close to being finalized, with an agreed process in place to enable publication. These define how CloudCO will use the interfaces and which are exposed. They also provide input into the test cases in order to define the acceptance criteria and the components involved in the test.

On SDN Management and Control Interfaces for Network Functions (WT-413), discussion on the creation of new models took place. This included a meta model for Access Nodes and other Network Functions, as well as a model for an access network map and inventory. The group spent a considerable amount of time on this document, removing sections with no text which were unlikely to gain contributions, with a view to pushing for Straw Ballot at the Q3 meeting. This document defines the main control interfaces for CloudCO.

Alongside this work, a CloudCO white paper (MD-430) is being progressed and is expected to be published by the Broadband World Forum event in October.

Since the Q1 meeting, the group has also held two successful webinars on CloudCO, which discussed the ongoing work, providing a detailed insight into the latest developments and the role CloudCO plays in the open broadband vision. Both completed webinars are available at: https://wiki.broadband-forum.org/display/BBF/BBF+webinars.

After several meetings, CloudCO Migration (WT-408) is now on a trajectory to enter Straw Ballot by the end of the year. This will explain options for operators looking to migrate from legacy network architectures to CloudCO. These are addressed in four categories – function migration, service migration, node migration and subscriber migration.

Finally, the Work Area is producing a Fixed Access Network Sharing (FANS) white paper which is currently in Straw Ballot. This work addresses the business opportunities created by TR-370. It will be followed by an additional white paper covering the more technical aspects of FANS.

An overview of all the work being carried out by the SDN and NFV Work Area can be viewed at: https://wiki.broadband-forum.org/display/BBF/SDN+and+NFV

It's all 5G for Wireline-Wireless Convergence Work Area

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

Study work on 5G fixed access continued throughout the Q2 meeting. The Forum is taking an important role in 5G, making recommendations for the connection points between the fixed and 5G mobile core networks. This work led by the 5G project stream is detailed in SD-407 5G Fixed Mobile Convergence. The Forum also conducted two webinars on the topic – one live during the meeting. Please see https://wiki.broadband-forum.org/display/BBF/BBF+webinars for more. **The pace has accelerated with added sessions to handle the increased contribution load and set the stage for an additional interim meeting to be held in Paris, France, from July 9- SD.FlexEMPLS45G 11.**

Some key agreements were achieved with respect to the set of service models of importance to the adopting carriers which allows the group to more effectively target the necessary solutions to produce a comprehensive specification. This was with respect to both the interworking and the integration models.

Joint sessions were held across the Technical Committee examining other aspects of 5G where the expertise of the Forum would apply. In particular, the impact network slicing and access convergence will have on transport networks. Network slicing, the ability to construct mission-specific virtual networks leveraging the 5G core, is expected to be a major new revenue source for carriers. This will allow carriers to move into new adjacencies such as smart cities, IoT and industrial/critical, real-time applications. The intention is to allow wireline to seamlessly integrate into the 5G ecosystem. This work is coordinated with the Innovation Group, the Routing and Transport Work Area, the SDN/NFV Work Area and other standards organizations that are part of the larger 5G ecosystem.

Work on WT-378 nodal requirements for hybrid access is being finalized and is expected to be published shortly. Hybrid access offers converged carriers an opportunity to leverage both wireline and wireless assets to provide high-bandwidth services, increased reliability and faster fulfilment. It also gives them additional options as to how they serve their customers in areas where fiber deployment would be extremely challenging.

A BoF session on the future of hybrid access took place on the Monday of the meeting. This presents a new and interesting opportunity to expand the set of industry players that would benefit from the Forum's value chain. Embodied in the BoF was a proposal for work on multi-actor relationships and policies that would enable new business models in the multi-access arena.

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

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Welcome to new and returning members!

We are pleased to welcome new and returning members to the Q2 meeting, including Easy CWMP, Hybrid Access Technologies, ISSI, Luster Teraband Photonics and Smart RG.

A number of special guests also attended the meeting in Osaka, including Furukawa Electric, Mitsubishi Electric, K-Opticom Corporation and Zinwell Corporation.

If you are interested in joining the Broadband Forum, please contact Rhonda Heier (rheier@broadband-forum.org).

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Thank you to our meeting sponsors…

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Documents approved include:

- WT-115i3a4 VDSL2 Performance Test Plan, Issue 3, Amendment 4
  Editor: Aleksandra Kozarev, of Intel
- ID-247i3a2 GPON & XG-PON1 ONU
  Editor: Marta Seda, of Calix
- WT-338 Reverse Power Feed Testing (Publication held for ETSI Reference spec, due for publication end of June 2018)
  Editor: Aleksandra Kozarev, of Intel
- WT-347 CPE SELT Operation Guidelines
  Editor: Ken Kerpez, of Assia
- WT-374 Yang Models for Management of G.hn Systems in FTTdp Architecture
  Editor: Marcos Martinez, of MaxLinear
- WT-383a1 Common YANG Modules
  Editors: Joey Boyd, of ADTRAN, and Ludwig Pauwels, of Nokia
- TR-416 CloudCO Use Cases and Scenarios
  Editor: Georgios Karagiannis, of Huawei Technologies

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

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Broadband Forum in the news

Broadband Access Abstraction and CloudCO have been receiving media attention this quarter, with bylines on the subjects carried by CSI Magazine, Broadband World News and InterComms.

The Forum also drew attention when it teamed up with Point Topic to announce that fiber and cable are now dominating broadband networks, with the technologies now servicing 77% of fixed subscriptions. The news received coverage in a host of top tier publications, including Fibre Systems, Content+Technology Magazine, Comms Business, and Disruptive Asia.

An even bigger stir was created when the Forum announced the publications of the User Services Platform specification. Fierce Telecom, Broadband World News, telecompaper and eeNews Europe all covered the news, with Communications Today also featuring a byline on the topic.

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Word on the Tweet

With a focus on next-generation technologies and action to engage new members, the Forum's social media presence continues to grow, with an increased level of tweeting and a renewed focus on the LinkedIn company page.

Help get the word out: Please connect with the Broadband Forum on Twitter (@Broadband_Forum), LinkedIn, Facebook and YouTube.

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Events Calendar

2018 Broadband Forum Meetings

Keep the below dates free for this year's upcoming quarterly meetings.
2018 Q3 5G Project Stream Interim Meeting: Chatillon (Paris) July 9-11
2018 Q3 Meeting: September 10-13 (Montreal, Canada)
2018 Q4 Meeting: December 10-13 (Glasgow, UK)

Sponsorship opportunities are available for the Forum's remaining 2018 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 the 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.

Forthcoming Industry Events

- TNO's Ultra-fast Broadband Seminar: June 19-21, The Hague, The Netherlands
- Broadband World Forum: October 23-25, Berlin, Germany
- BASE Las Vegas: October 28th Encore Hotel, Las Vegas

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Contact information

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