

Q&A with Geoff Burke, Chief Marketing Officer, Broadband Forum

## Broadband at the Crossroads

An industry veteran takes a holistic look at drivers of broadband subscriber growth and the impacts of new broadband technologies.

*In September 2018, Broadband Forum named telecom industry veteran Geoff Burke as its chief marketing officer. Before coming to Broadband Forum, Burke served in senior leadership roles at equipment vendor Calix for 14 years, including most recently senior director for corporate marketing. Earlier, Burke was a marketing pioneer in the nascent IPTV market, led strategy consulting engagements at the McKenna Group and KPMG, and held management roles at Oracle Corporation. Broadband Communities recently caught up with Burke to talk about Broadband Forum's strategy regarding standards for fiber, 5G and open-source software. Following are highlights of that conversation.*

**BROADBAND COMMUNITIES:** *here are now more than 1 billion fixed broadband subscribers worldwide, according to Point Topic. What do you attribute that growth to? And how did it happen so quickly?*

**GEOFF BURKE:** he primary reason was the creation of a global market [for services and network equipment]. his was driven by foundational standards from Broadband Forum. First and foremost is the TR-069 standard [for remote management of customer-premises equipment over IP networks], which defined how any subscriber and device connects to the broadband infrastructure. Complementary to TR-069 is the TR-101 standard, which deigned the architecture model [an Ethernet-based architecture to support multiservice deployments] for the fundamental



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broadband infrastructure that most service providers around the world have implemented.

A lot of our activities focus on two things: Helping the next billion end users get connected and elevating the broadband experience of the 1 billion who are already connected. We have initiatives around application layer testing and what we call Broadband Quality of Experience Delivered (QED), which is being driven by Vodafone

and Predictable Network Solutions. Broadband QED is looking at a granular level in terms of measuring broadband quality of experience and application outcomes and applying that back into the infrastructure to make broadband better.

**BBC:** *You mentioned TR-069 being a growth catalyst. How has it fostered subscriber adoption?*

**GB:** TR-069 was foundational in terms of supporting raw connectivity as well as providing tools for auto-configuration, software and performance management, and diagnostics. It has gone through iterations in terms of enhancement, adding extra levels of support for faster connectivity and new configurations, applications and services, including the accommodation of Wi-Fi.

**BBC:** *How is Broadband Forum building on TR-069?*

**GB:** It was time to look at how to build another foundational protocol based upon the internet of things (IoT), and that's what User Services Platform (USP) is. USP is complementary to TR-069 and preserves as many data models as possible. It was not a huge operational leap for service providers, but it looked at what needed to be changed ... in terms of connecting not only a handful but also dozens or hundreds of devices at individual locations. USP will handle security and privacy and elegantly make sure you're supporting advanced Wi-Fi and the coordination of Wi-Fi in mesh configurations.

**BBC:** *As consumers adopt more home IoT applications, such as security, do*

*you see service providers looking to monetize them?*

**GB:** he monetization of the IoT is important. It depends on making sure not only that [the application] enhances the experience of the subscribers but also that those IoT devices can communicate with one another to create value. The other thing is keeping those subscribers, because the IoT does not exist without broadband infrastructure. Unless service providers can manage home network environments and play more-active roles in overall broadband experiences, the opportunities for monetization and for profitability are really limited because instead of capitalizing on the incredible new services they can offer, service providers will spend all their time answering questions from their customers about "why isn't my broadband working?"



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**BBC:** *How do you see broadband evolving?*

**GB:** I see a couple of issues. One is connecting the next billion users and improving the broadband experience of those who may be connected but are not necessarily connected as elegantly as they should be. This is where technologies such as G.fast and G.hn are advancing broadband experiences in the multiple dwelling units of the world, which are arguably very underpenetrated.

The other angle is hybrid access, which is about supporting different media types – copper, fiber, Wi-Fi in the home, cellular networks – and looking for them to complement one another in providing a higher level of experience. When you have a cellular infrastructure and a wireline access infrastructure going into the same location, they can be organized to complement one another in providing a better broadband experience. We see that becoming a bigger issue as we move into 2019 and beyond. Service providers need to find optimal ways to take those next steps to enable those experiences.

**BBC:** *here's a lot of momentum and hype around 5G, with operators touting different visions. What are the opportunities and challenges for operators rolling out 5G?*

**GB:** here are several flavors of 5G coming out. Besides AT&T and Verizon, there are other flavors emerging around the world, and that is an inhibitor to mass global adoption. When everyone is working with their own flavors, it presents challenges at all levels: devices that need to connect to other networks or components that need to feed into network equipment or anything that's complementary to those overall ecosystems.

**BBC:** *Broadband Forum has responded to broadband providers' efforts to use open-source coding with the Open Broadband Multi-Access Point (OB-MAP) initiative. How is that effort progressing?*

**GB:** As meshed Wi-Fi becomes much more widely implemented globally, it is important that service providers have a framework and the ability to troubleshoot on the back end, layer, and add new services to the mix. OB-MAP is working with complementary organizations, including the Wi-Fi Alliance and others, and making sure we're facilitating and bringing our expertise into that mix. Adding that expertise is really what the Open Broadband initiatives at Broadband Forum are all about.

**BBC:** *With Broadband QED, Broadband Forum is helping define a quality of experience architecture. Will this help service providers market user experience in addition to internet speeds?*

**GB:** Service providers globally are looking to solve a two-sided challenge. One is to have better broadband experiences for their subscribers and find ways to measure that in terms that are more granular than speed. Speed, and the infrastructure that supports it, can get increasingly expensive and may not be what solves a lot of the challenges that subscribers run into. It could be a challenge with latency or overall delivery within a connected home and connectivity between devices. What the Broadband QED initiative is meant to do is break those down into several very discrete components and leverage that information to create a better experience for subscribers that's aligned with what their applications are demanding.

The second component is how we should invest in infrastructure that meets the requirements of the applications while allowing an optimal path for investment and delivery. The last component is that, when you have that granular view, it allows you to better support challenges in subscribers' homes. If you could turn a knob, and not send out a truck, to alleviate latency or burst speed in a way that allows someone to solve a problem in

their broadband experience, you have solved a big support problem. Broadband QED is built around providing that granular level that defines quality of experience in broadband by breaking it down by application and metrics other than speeds.

**BBC:** *NG-PON2 has been gaining momentum, with service providers such as Verizon conducting field tests. How will NG-PON2 help service providers address future applications and demand for higher speeds?*

**GB:** NG-PON2 is certainly a promising technology, providing the flexibility to scale up broadband speeds to 40 and even 80 Gbps symmetrically on demand, to converge multiple services networks into a single optical distribution network and to achieve this while coexisting on the same network and physical infrastructure as GPON. You can see why service providers such as Verizon, which have already made substantial investments in their fiber infrastructure and can potentially achieve major operational efficiencies by collapsing their residential, business, and wireless infrastructure into one network, find it very attractive.

With bandwidth needs driven by applications such as 5G backhaul, connected and autonomous cars and AR/VR, NG-PON2 provides a compelling invest-once-and-manage-remotely capability to a service provider. That said, the jury is still out on whether that converged model is operationally feasible for many operators and whether the cost premium of tunable NG-PON2 optics is ultimately worth the simplicity of leveraging other, currently less costly, 10 Gbps technologies such as XGS-PON or 10G EPON. No matter which 10 Gbps technology is most widely adopted, there is little question that demand for services that will need the capacity of 10 Gbps technologies is rapidly emerging. V



