



Improved network performance measurement and analysis enabled by Broadband Forum

The industry continues to shift from simply delivering faster gigabit speeds to better service-aware Quality of Experience (QoE) and network performance analysis

Fremont, California, 29 November 2022 - Broadband network operators can now take advantage of improved performance measurement and analysis tools with the principles of quality attenuation being applied more widely to operators' networks and at low cost by leveraging its capabilities in pre-existing equipment – for example, in CPE devices.

Crucially, the [TR-452.2](#) extension to [Broadband Forum](#)'s Quality Attenuation (QED) framework means that real-world quality attenuation testing such as proactive analysis of network performance and support for customer service troubleshooting can now be done, taking testing beyond network design and lab evaluation. This will help operators identify and resolve network faults before customers perceive any service issue, as well as enable the arrangement and delivery of new experience-specific Service Level Agreements (SLAs).

“In an evolving broadband market, once broadband speed stops constraining service delivery, Quality Attenuation (which includes latency, jitter and packet loss) becomes the most important metric to delivering QoE for increasingly time-sensitive applications,” said Craig Thomas, Vice President Strategic Marketing and Business Development at Broadband Forum. “A standards-driven approach is critical to how metrics are automated and continuously measured leading to zero-touch Automated Intelligent Management (AIM) tools that ensure subscriber service quality.”

The Quality Attenuation (QED) framework is developed by the [Broadband Quality of Experience Delivered \(Broadband QED\) initiative](#) from Broadband Forum. It uses Quality Attenuation to encompass factors such as latency, consistency, predictability, and reliability, enabling operators to [look beyond conventional measurements, such as Quality of Service \(QoS\), as a standalone litmus test of quality, and provide deeper insights into QoE and application outcomes.](#)



“The shift continues from bandwidth quantity and speed as a proxy for how good a broadband connection is to measurements like latency,” said Peter Thompson, Predictable Network Solutions Ltd and Editor of TR-452.2. “Latency and consistency are paramount as the industry aims to build greater application outcomes to keep operators’ end-users satisfied and avoid support calls, or customer churn. The latest publication builds on our ongoing progress with Quality Attenuation measurements bringing greater insights into network health and proactively diagnosing any problems.”

Quality Attenuation is a metric for capturing, measuring, managing and manipulating the performance aspects of networks and the services they enable. Operators can use Quality Attenuation across access technologies in their own networks to identify broadband performance characteristics that “traditional” packet layer performance techniques and tools fail to reveal.

Performance measurement and monitoring tools are already commonplace in networks, with Network Operations Centers (NOCs) and field operations teams equipped with a range of tools and testers. Tools using active measurement protocols such as Two-Way Active Management Protocol (TWAMP) and the new Simple Two-way Active Measurement Protocol (STAMP) can now be enhanced to leverage Quality Attenuation measurements for network health and to assist root cause analysis.

“For many years, throughput was a primary constraint on user experience, and as a result end-users and regulators have been conditioned into purely addressing broadband speed,” said Gregory Mirsky, PEAT Project Stream Leader of the Broadband Forum ATA Work Area with Ericsson. “Mapping network quality to user experience is difficult as it depends on the application being used. New applications including cloud gaming, AR/VR and industrial IoT place added stress on innovative broadband networks, and the industry needs to be well-positioned to look beyond factors such as data rate and ping time to deliver a reliable quality network.”

Operators can now assess “in-life” broadband network performance and other phases of the technology lifecycle, including design and lab evaluation of new equipment, applications, technologies, implementation options, such as physical hardware or software virtualized functions, and architectural decisions, such as centralized or distributed architecture. Round-trip



IP performance between two end devices in a specific network that may be a wired IP or a wireless network supporting TWAMP or STAMP can be measured more effectively.

When quality is attenuated, packets are delayed or dropped due to a variety of reasons such as Wi-Fi problems or capacity issues. Broadband QED provides a framework for decomposing a trip time into distinct components, matching them to the performance degradation sources, for example transmission time or packet queuing, and relating them to geographical network topology, network features, and network load/scheduling.

For more information about Broadband Forum, visit: <https://www.broadband-forum.org/>.

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About the Broadband Forum

Broadband Forum is the communications industry's leading open standards development organization focused on accelerating broadband innovation, standards, and ecosystem development. Our members' passion – delivering on the promise of broadband by enabling smarter and faster broadband networks and a thriving broadband ecosystem.

Broadband Forum is an open, non-profit industry organization composed of the industry's leading broadband operators, vendors, thought leaders who are shaping the future of broadband, and observers who closely track our progress. Its work to date has been the foundation for broadband's global proliferation and innovation. For example, the Forum's flagship TR-069 CPE WAN Management Protocol has 1 billion+ installations worldwide.

Broadband Forum's projects span across 5G, Connected Home, Cloud, and Access. Its working groups collaborate to define best practices for global networks, enable new revenue-generating service and content delivery, establish technology migration strategies, and engineer critical device, service & development management tools in the home and business IP networking infrastructure. We develop multi-service broadband packet networking specifications addressing architecture, device and service management, software data models, interoperability and certification in the broadband market.

Our free technical reports and white papers can be found at <https://www.broadband-forum.org/>.

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