



# ANNUAL REPORT 2023

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Email: [info@broadband-forum.org](mailto:info@broadband-forum.org)  
Website: [www.broadband-forum.org](http://www.broadband-forum.org)

Address: 39221 Paseo Padre Pkwy,  
Suite J, Fremont, CA 94538 USA

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## The Broadband Forum Board of Directors



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Commscope



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UNH-IOL

# CHAIRMAN'S LETTER

Dear Broadband Forum colleagues, members, and industry peers. 2024 marks the 30<sup>th</sup> anniversary of the DSL Forum, a forerunner of the Broadband Forum, and it feels like an apt moment to look back on our successes from the past 12 months. Our great work is a homage to the continued dedication and global collaboration from our community of network operators, service and app providers, and technology innovators.

We are in an exciting time for broadband. The need for deployable industry standards to ensure interoperability between solution providers and open-source initiatives has never been greater, and there is a key opportunity for service providers to move beyond simply delivering the broadband connection. More appropriate value and relevant applications can be realized thanks to a 'services-led' approach. This is creating an agile broadband ecosystem that is driving network efficiencies and an experience that subscribers truly depend on beyond the base level fast reliable connection.

The volume of published work is continuously growing. As too are our focus areas, spanning from the managed home, fiber access, the access and transport network, to the software defined and managed operators' edge and core networks. We also continue to demonstrate the critical role that open standards play in supporting the growth of open-source initiatives within the Forum, and

with external communities. To pick out a few highlights of published and newly initiated work during 2023:

- TR-486 Automated Intelligence Management within SDN/NFV
- TR-458 work within Wireless and Wireline Convergence
- TR-476 G.hn performance testing
- TR-369a3 Broadband User Services and advancements in OB-USPA Release 8
- The creation of new OB Projects including OB-STAMP and OB-CAS

2023 proved to be a major success for our member meetings, with significant numbers joining and driving our new areas of focus. We also introduced our brand new 'Town Hall Innovation Series' that educated attending members and guests. This also helped us identify new opportunities where key industry trends can be aided by deployable standards and guidance.

We continue to recognize ten-year elevated levels of membership working alongside existing members, as well as welcoming new and returning companies into the fold.

Together they continue to drive new projects, certification programs, and industry education events, all while developing Broadband Forum standards within operators' networks. The success of our adopted industry standards, data models, and architectures are a direct reflection of our membership's technical expertise and focus.

It is testament to this community's role in shaping how we deliver broadband to every corner of our world.

As an organization we continue to evolve to meet the needs of the industry and strategically focus on meeting the increased demands for the future 'services-led' broadband. Our focus across all of our work areas and open broadband projects is to meet the requirements of the connected user, the operator's broadband network architecture, and the provider's cloud.

It is in the Broadband Forum's DNA to educate and aid the deployment and evolution of broadband services for every broadband provider. This in turn benefits every Internet, IoT, and communications user. Your continued

expertise, commitment, and contribution is critical to this. This is demonstrated in all the work we have produced in the last year and the significant new work in progress. On behalf of the Board of Directors, I thank our members and partnerships with other standard development organizations and software initiatives that are making the potential of broadband a reality.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'John Blackford', written in a cursive style.

John Blackford  
Chair of The Board

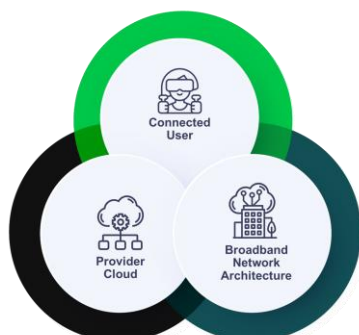
# 2023 IN REVIEW

## Membership:

The Forum continued with its high levels of membership with over 170 members and a strong growth of 8.5% in Large Principal membership. We also simplified our membership structure by integrating our Auditing and Observer levels into a single category. In total in 2023 Membership dues increased by 10.3% compared to 2022.

## Focus and Strategy:

The Forum's leadership continuously discusses our focus on ongoing strategy. In 2023 it was recognized that the future of broadband goes beyond the need for just gigabit-capable connectivity. The broadband subscriber's demands will increasingly be about the "application experience", where Quality of Experience, artificial intelligence, security, sustainability, network agility, and autonomy are all driving a new broadband network that is truly **"Services-Led"**. Considering this, we have realigned our top-level focus to three new key areas, displayed in the graphic below:



## Financials:

The Broadband Forum recognized an operating surplus in 2023 of \$303,687, with operating revenue increasing by 12.15% while total operating expenses increased by 11.6%.

Furthermore, interest and investment income increased by \$233,973 compared to previous 2022 market losses.

In total (including interest and investment income) The Broadband Forum Net Assets increased in 2023 by 23% to \$2,924,375

## Member Meetings:

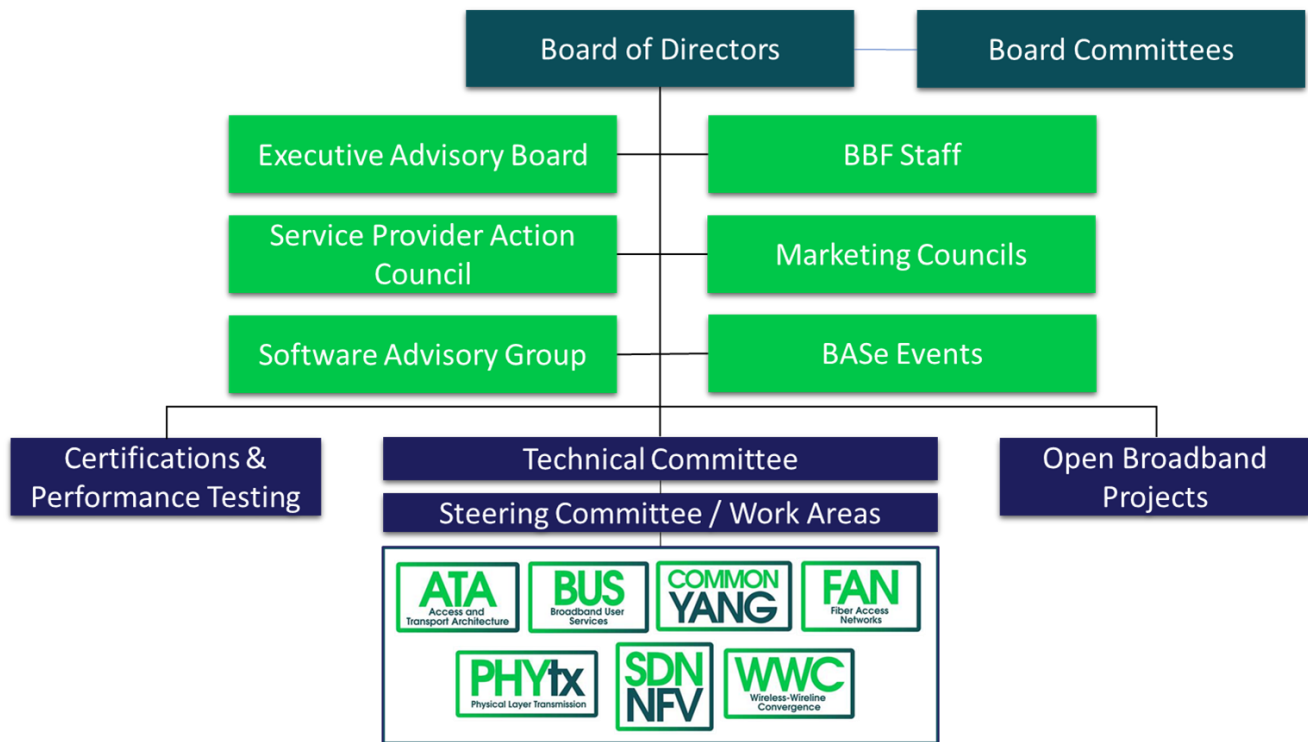
2023 witnessed a return to four quarterly member meetings with three 'face-to-face' events (Dallas, Porto, and Bangkok) and one virtual member meeting. Average attendance at our member meetings showed signs of a full recovery to pre-pandemic levels.

In light of a "services-led" approach to broadband, The Forum also re-introduced open-to-all-members "Town Hall Innovation Series" to kick off our member meetings. These highly successful half-day sessions focus on key industry topics that are driving new demands on the broadband ecosystem and require additional focus by standards bodies.

# PUBLISHED WORK

MR-459.4	Multi-service Disaggregated BNG New Features
TP-337i4c1	G.fast Certification Test Plan
TR-106a12	Data Model Template for CWMP Endpoints and USP Agents
TR-143a1c2	Network Throughput Performance Tests and Monitoring
TR-181i2a16	Device Data Model
TR-285i2a1	Broadband Copper Cable Models
TR-301i2a2	Architecture and Requirements for Fiber to the Distribution Point
TR-369a3	User Services Platform (USP)
TR-369a3c1	User Services Platform (USP)
TR-383a6	Common YANG Modules for Access Networks
TR-383a7	Common YANG Modules for Access Networks
TR-385i2a1	ITU-T PON YANG Modules
TR-452.5	Quality Attenuation Measurements Using L2 PM OAM
TR-456i2c1	AGF Functional Requirements
TR-457	FMIF Functional Requirements
TR-458	WWC Control and User Plane Separation Reference Architecture
TR-459i2	Multi-Service Disaggregated BNG with CUPS Architecture
TR-476	G.hn Access Performance Test Plan
TR-486	Interfaces for AIM
TR-488	Managed Residential/SOHO Network Architecture Requirements
TR-489	TR-489: ONU Authentication and Selection of eOMCI or vOMCI
OB-USPA 7.0	Goldeneye Release, Incl. MQTT MTP and WebSocket MTP advancements
OB-UDP-ST 8.0	Multiple UDP flows between client and distributed server connections
OB-UDP-ST 8.1	Option of exporting received load traffic metadata in CSV format
OB-BAA 6.0	OB-BAA Enhancements including distributed OLT and vOMCI

# FORUM ORGANIZATION AND LEADERSHIP



## Executive Advisory Board (EAB)

Introduced in 2017, The EAB provides an executive C-level and strategic lens through which the Forum can gain insights into major industry trends and investments that shape our future. The EAB's focus is to give direction and recommendations on the industry - and hence, the standards and open source requirements that align with their significant investment plans.

## Service Provider Action Council (SPAC)

The SPAC is a key influential standing committee keeping the Forum connected to service provider needs and end-user requirements. Open exclusively to service provider membership, it offers continuous direction and recommendations to ensure strategic direction is accurate and also drives many new project initiations and working texts.

## Software Advisory Group (SAG)

The SAG comprises of contributing member companies and provides a center of software expertise within the Forum. It advises on engagement with external SDOs and OS organizations on the processes and modeling tools to enable them to work as an agile software-focused organization.

## Steering Committee

The Steering Committee's primary goal is to execute the Forum's strategy via the Work Areas of the Technical Committee. The sitting members monitor work in progress across the Forum. The Steering Committee influences the technical work and oversees the formation of project streams and the appointment of Work Area Directors. The Forum's procedures, use of tools, liaison program, and the technical content of Broadband Forum meetings also fall to the Steering Committee.



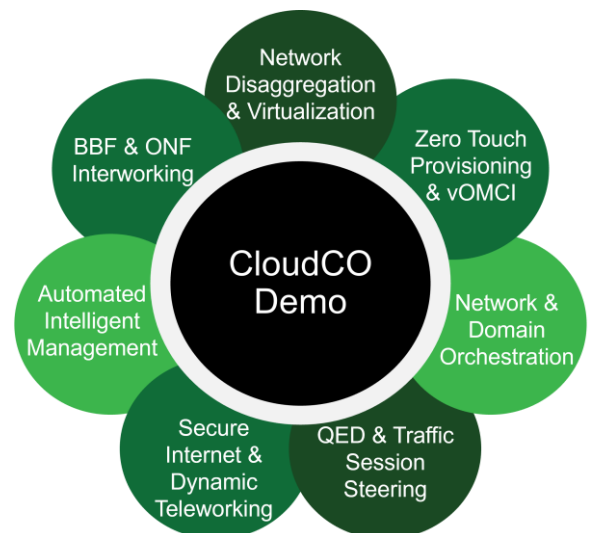
Broadband Forum's Open Broadband initiative brings open source and open standards together, paving the way for transformative changes in our industry and bring the full promise of broadband to fruition.

The future of broadband will be the result of the marriage between the flexibility, innovation, and speed of “open software” and with the discipline, efficiencies, and global scale made possible by “open standards”.

By bringing the best ideas of open source together with the interoperability and standards required for mass market solutions, the Forum is bringing true innovation and scale to the industry.

Open Broadband projects within the forum continue to thrive since their inception in 2017. The following are the currently active Open Broadband projects:

- **Open Broadband—WWC Reference Implementation for 5G-RG (OB-WWC)**  
Focused on creating a Wireless-Wireline reference implementation for 5G-capable Residential Gateways (5G-RG). Developing a production-grade 5G-RG solution stack for integration into OpenWRT/RDK-B RG platforms.
- **Open Broadband—Broadband Access Abstraction (OB-BAA)**  
Enabling standardized, automated and accelerated deployment of new cloud-based access infrastructure and services. Link [here](#) for more information.
- **Open Broadband Multi Access Point (OB-MAP)**  
Ensuring that the software of open-source innovators like prpl Foundation and RDK-B, and their mesh software projects will be scalable to service providers deployments via carrier-grade manageability.
- **Open Broadband—UDP Speed Test (OB-UDPST)**  
Enabling an open source implementation tool to perform IP Layer Capacity metrics and measurement for gigabit broadband connectivity. Link [here](#) for more information
- **Open Broadband—User Services Platform Agent (OB-USP-Agent)**  
Creating a reference implementation of the User Services Platform (USP) specification from an “agent” perspective.





# INTEROPERABILITY AND CERTIFICATION

The Forum has had an objective to establish interoperability in the broadband marketplace. Today, our Interoperability and Certification programs encompass end-to-end broadband testing requirements including fiber, copper access, and home networking-related interoperability and conformance testing.

The BBF Testing and Certification programs include:

- Developing common test requirements
- Establishing a test suite which includes functional and performance tests
- Hosting test events (Plugfests), which can include members only multivendor Plugfests, conformance testing, public interoperability demonstrations and/or certification

## Certification Impact:

- Creates confidence and minimizes risks
- Establishes a trusted industry standard for implementation and high customer satisfaction
- Leverages vast experience and expertise
- Avoids extensive provider testing before purchase
- Significantly reduces costs and accelerates time to revenue for all stakeholders
- Interoperability certification critical for developing the choice of silicon and products for provider integration
- Provides a starting point for service provider integration and fosters a diverse marketplace

## Certification programs:

### BBF.369 USP Certified Products

The Forum offers a comprehensive set of testing options for the USP Agent that span both Interoperability and a Certification Program.

### BBF.069 Certified Products

Created to assure platforms consistently adhere to the BBF-TR-069 protocol for remote lifecycle management, billing, customer support and deployment of customer CPE and devices.

### BBF.247 GPON/XGS-PON Certified Products

BBF.247 is a globally accepted industry standard that ensures multi-vendor GPON and XGS-PON interoperability. Offering ONU choice and flexibility for service providers and broadband consumers

### BBF.337 Gfast Certified Products

Gfast Certification and Interoperability program consisting of interoperability Plugfests, test results, official certification, and logo rights.

### BBF.398 Carrier-Grade Wi-Fi

The BBF.398 Carrier-Grade Wi-Fi testing program for Wi-Fi devices. The program, based on the Broadband Forum's TR-398, measures a Wi-Fi AP device's performance against a set of absolute requirements.

### Access Network Testing (G.hn)

Based on TR-476 Access Performance Test Plan, ensuring G.hn products meet specific performance parameters.

### xDSL testing

To drive interoperability, the Broadband Forum has developed a set of Technical Reports that provide the testing parameters for various DSL specifications.



# BASE EDUCATION AND EVENTS

The Broadband Forum is the industry's most respected organization for accelerating broadband innovation and deployment, and our fast-growing Broadband Acceleration Seminar (BAsE) series provides key insights into the state of broadband innovation, technology, standards, and ecosystems.

Held in conjunction with major industry conferences, each BAsE event draws hundreds of key influencers from global broadband service providers, suppliers, analysts, and government officials who appreciate our uncompromising educational focus and our member's leading-edge perspectives.

BAsE series is driven around three major tracks; The Connected User, Fiber and Copper Access Technologies, and Network and Service Delivery. It includes areas of focus of the Forum – Connected User, Network Architecture and Provider Cloud. BAsE provides sponsors with unparalleled access to broadband industry innovators and leaders.



BAsE events are renowned throughout the industry as unique thought leadership events created by tech innovators for tech leaders.

2023 was another busy year for BAsE, both in the number of sponsors and also total number of events. With the continued return of face-to-face conferences in 2023. BAsE was active with 11 separate workshops across seven industry conferences.



In addition, through vBAsE we held 11 Webinars and virtual events throughout the year. In total we had 88 thought leaders deliver presentations across our calendar of virtual events, creating over 18 hours of video content.

## BAsE 2023 Sponsors:



# RECOGNIZING LEADERSHIP & EXCELLENCE

In 2023, The Broadband Forum recognized the outstanding contributions and leadership of those who shaped the growth of broadband, globally.

## Distinguished Fellow

The Broadband Forum bestows the Distinguished Fellow title to exceptional individuals who have over time provided a major influence on the direction and success of broadband development.

Bernd Hesse, **DZS**  
Bruno Cornaglia,  
**Vodafone**

## Leadership Award

The Leadership Award is given to outgoing, laudable working group chairs or board members. Those individuals, who have dedicated their time, and leadership to our success within The Forum.

David Sinicrope, **Ericsson**  
Greg Mirsky, **Ericsson**  
Aleksandra Kozarev,  
**MaxLinear**

## Circle of Excellence

The Broadband Forum recognizes the exceptional ongoing contributions of its members through the “Circle of Excellence” award, which is awarded at our annual meetings for continuous service and excellence.

Matthieu Anne, **Orange**  
Nick Hancock, **Adtran**  
Ludwig Pauwels, **Nokia**  
Jeff Hartley, **CommScope**  
Venkatesh Padebettu,  
**Juniper Networks**

## Outstanding Contributors

The Outstanding Contributor awards are given to individuals who, during the previous year, went above and beyond the call of duty within The Forum work areas.

Dennis Edwards, **Nokia**  
Justin Nelson, **UNH-IOL**  
Stephane Bryant, **MT2**  
Kenneth Wan, **Nokia**  
Tom Van Caenegem,  
**Nokia**

# FINANCIAL REPORT

John Wadell & Co, Certified Public Accountants, conducted the audit of the 2023 Broadband Forum financial statements. The Following tables provide an overview of the financial position and key financial metrics of the organization at the close of 2023.

## Statement of Financial Position

December 31, 2023

(With Comparative Totals for December 31, 2022)

ASSETS		
	2023	2022
Cash and Cash Equivalents	\$ 2,158,455	\$ 1,786,418
Investments	\$ 1,814,248	\$ 1,593,257
Accounts receivable	\$ 400	\$ 9,625
Prepaid expenses and deposits	\$ 15,593	\$ 19,131
Website net accumulated amortization	-	\$ 1,512
	\$ 3,988,696	\$ 3,409,943
LIABILITIES AND NET ASSETS		
<b>Liabilities</b>		
Accounts payable	\$ 217,808	\$ 182,949
Accrued liabilities	\$ 144,477	\$ 147,379
Deferred membership dues	\$ 702,036	\$ 692,900
Total Liabilities	\$ 1,064,321	\$ 1,023,228
<b>Net Assets</b>		
Without donor restrictions:		
Designated for reserves	\$ 1,000,000	\$ 1,000,000
Undesignated	\$ 1,924,375	\$ 1,386,715
Total Net Assets	\$ 2,924,375	\$ 2,386,715
	\$ 3,988,696	\$ 3,409,943

## Statement of Activities

For the Year Ended December 31, 2023

(With comparable Totals for December 31, 2022)

	2023 Total Without Donor Restrictions	2022 Total
<b>Revenue:</b>		
Membership dues	\$ 1,746,952	\$ 1,582,919
Meeting fees	\$ 187,270	\$ 105,750
BASe event fees	-	\$ 20,895
Sponsorship fees	\$ 395,000	\$ 388,250
Interest & Investment Income	\$ 233,973	\$ (327,616)
Total Revenue	\$ 2,563,195	\$ 1,770,198
<b>Expenses:</b>		
Program Services:		
Meetings	\$ 543,931	\$ 462,452
Member Services, tools & other	\$ 309,780	\$ 210,118
Marketing, tradeshow, & PR	\$ 570,459	\$ 584,305
Total program services	\$ 1,424,170	\$ 1,220,875
General and administrative	\$ 601,365	\$ 594,044
Total Expenses	\$ 2,025,535	\$ 1,814,919
Change in Net Assets	\$ 537,660	\$ (44,721)
<b>Net Assets:</b>		
Beginning of Year	\$ 2,386,715	\$ 2,431,436
End of Year	\$ 2,924,375	\$ 2,386,715

**ENDS**