# **Proadband**

# annual report 2011



**Tom Starr** Chairman The Broadband Forum

"The Broadband Forum charts the future of communication networks, which are improving lifestyles throughout the world."

### Dear Broadband Forum colleague,

Engineering smarter and faster networks to meet the requirements of the industry, the Broadband Forum continues to be THE place companies focus their time, talents and resources to ensure global broadband standards keep pace with market demand. Staying active in the Forum is an important way for companies to stay on top of broadband developments, to benefit from early knowledge and collaboration on industry best practices while influencing the major technology trends. The Broadband Forum charts the future of communication networks, which are improving lifestyles throughout the world.

We accomplished so much this year the highlights being:

- ✓ expanding our Certification Program to address G-PON equipment,
- ✓ publishing IPv6 integration and migration tools,
- ✓ providing new measures to ensure DSL Quality Management (DQM),
- evolving device management specifications (TR-069) for easier implementation and broader application,
- ✓ establishing the converged network specifications to facilitate MPLS support of LTE.

We exceeded threefold our goal for reaching the number of publications worldwide with our marketing and educated our industry more effectively than ever with timely and valuable tutorials, online education and white papers.

Through our effective collaboration with other standards bodies we play a central role in the eco-system of standards organizations, driving industry advancement and acting as a catalyst to spur deployments around the world. Thank you for your support and utilization of the Broadband Forum's work - our goal truly is to empower the broadband industry to advance and prosper in 2012.

Sincerely,

0 Thomas Stur

Tom Starr Chairman The Broadband Forum

# <u>chairman's letter</u>



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### **Board of Directors**



**Chairman** Tom Starr AT&T



President Kevin Foster BT



**Vice President** Marcin Drzymala Telekomunikacja Polska



Vice President Andrew G. Malis Verizon Communications



**Treasurer** Frank Van der Putten Alcatel-Lucent



Secretary David Sinicrope Ericsson



Chief Executive Officer Robin Mersh Broadband Forum



Board Member Peter Adams ADTRAN



Board Member Christophe Alter France Telecom



Board Member Greg Bathrick PMC-Sierra



Board Member Les Brown Lantiq



Board Member Sultan Dawood Cisco Systems



Board Member George Dobrowski Huawei Technologies



Board Member Mauro Tilocca Telecom Italia

# forum leadership

### **Committee Leadership**

The work of the Broadband Forum is performed under two main working committees, the Technical Committee and the Marketing Committee and a special advisory group, the Service Provider Action Council (SPAC).

Technical Committee Chair:	Technical Committee Vice Chair:
Christophe Alter, France Telecom	Frank Van der Putten, Alcatel-Lucent
BroadbandHome Co-Chairs: Greg Bathrick, PMC-Sierra	
Jason Walls, QA Cafe	
End-to-End Architecture Co-Chairs:	End-to-End Architecture Vice Chair:
David Thorne, BT David Allan, Ericsson	Sven Ooghe, Alcatel-Lucent
Fiber Access Network Co-Chairs:	
Regis Coat, France Telecom Alessandro Capurso, Telecom Italia	
IP/MPLS & Core Chair:	
Rao Cherukuri, Juniper Networks	IP/MPLS & Core, Applications & Deployment Vice Chair: David Sinicrope, Ericsson
	IP/MPLS & Core, Certification Vice Chair: Drew A. Rexrode II, Verizon Communications
Metallic Transmission Chair:	Metallic Transmission Vice Chairs:
Les Brown, Lantiq	Lincoln Lavoie, UNH InterOperability Laboratory
	Massimo Sorbara, Ikanos Communications
Operations & Network Management Chair: Peter Adams, ADTRAN	Operations & Network Management Vice Chair: Moti Morgenstern, ECI Telecom
Chief Editor:	
Michael Hanrahan, Huawei Technologies	

Marketing Committee Chair: Yue Chen, Juniper Networks	Marketing Committee Vice Chair: Sultan Dawood, Cisco Systems	
Chair of International Development: Nikhil Shah, Juniper Networks	Vice Chair of International Development: Vanessa Nacamura, Nokia Siemens Networks	
Best Practices/Summit/BoF Chair: Dov Zimring, Google, Inc.		
Ambassadors Chair:	Ambassadors Vice Chair:	
Dov Zimring, Google, Inc.	David Christophe, Alcatel-Lucent	
Content Development – White Papers Co-Chairs:	Content Development – Tutorials Chair:	
Sarah Banks, Cisco Systems	David Christophe, Alcatel-Lucent	
Vanessa Nakamura, Nokia Siemens Networks	•	

### SERVICE PROVIDER ACTION COUNCIL

SPAC Co-Chairs: Drew A. Rexrode II, Verizon Communications Mauro Tilocca, Telecom Italia

<u>committee leadership</u>



### **Strategic Initiatives**



Kevin Foster President The Broadband Forum

In 2010 the Board of Directors determined that an end-to-end approach to broadband was required to ensure we provide the full scope of specifications needed for the industry to take broadband to the next level. In 2011, that approach was implemented across all working groups of the Forum.

Three Strategic Focus areas were identified by the Board:

- Green, including energy efficiency measures and tools as well as management solutions for metering/monitoring consumption (traversing all Forum work)
- **Broadband Convergence**, looking at Fixed Networks in combination with Mobile Networks from an architecture, management, backhaul and service assurance perspective
- Business Services, exploring the value add role of the Broadband Forum in this new field, which includes machineto-machine, Cloud and Data Center support

Oversight Committees are in place to catalyze these key areas of work. The progress made around these strategic initiatives and the full range of Forum work is detailed in the sections that follow.

### Service Provider Action Council (SPAC) Activities

The Service Provider Action Council (SPAC) brings the service provider community together to guarantee the Broadband Forum has continuous guidance on service requirements and technical evolution. This engagement of Service Providers guarantees market relevance and timely specification delivery. At each meeting in 2011, the SPAC attendance averaged more than 50 attendees from over 15 service provider companies.

### **Topics in 2011 Included:**

- Broadband Forum Role in Leading Innovation
- BBF G-PON Certification Program- Meeting Service Provider Requirements
- Report on TR-069 Utilization & Future
- Service Provider Input into FSAN IOP Test Event
- IPv6 Day & BBF Engagement
- · Board Strategy Outcomes and Impacts on SPAC
- TR-069/UPnP Proxy Management
- OD-263 Operators requirements for FTTdP scenarios and ITU-T G.fast

- OD-264 Operators requirements for VDSL2 Low Power Modes
- WT-124i3 Survey on Residential/Broadband Gateway
   Functionality
- Access Trunk Use and Capacity Framework
- Network Located Residential Gateways
- Feedback on joint 3GPP/BBF workshop
- Service Provider Requirements for Energy Efficient G-PON

### **Technical Committee Achievements**

In 2011, our workload was immense as we covered almost 1600 contributions; quite an increase from previous years. The working groups progressed 73 working texts (WTs) and 18 technical reports (TRs) were approved. Following the Board's strategic directive, each working group prioritized their workload to ensure that key G-PON, IPv6, MPLS, VDSL2, DQM and remote management work moved forward quickly. New work also began in the areas of Connected Home and Business Broadband management solutions.

The Broadband Forum packages technical reports into distinct BroadbandSuite Releases that provide a roadmap of broadband solutions. Each new release builds on the platform of the former releases. Ultimately, the release program offers the industry a toolkit for broadband deployment.

Great progress was made as the **BroadbandSuite 4.0, 4.1** and **5.0** were released in 2011. These releases provide important solution sets for the industry.

- BroadbandSuite 4.0 provides integration and migration solutions for network and management support of the new addressing protocol – IPv6
- BroadbandSuite 4.1 offers tools and techniques for enhancing service delivery and support of the Connected Home
- BroadbandSuite 5.0 provides the architecture, management and testing tools needed to ensure interoperability in PON deployments

# annual report 2011

"IPv6 represents the future of the Internet and the Broadband Forum's work on standards and specifications is a great enabler. Working with the Broadband Forum allows us to ensure that our Certification Program meets the needs of the industry." Latif Ladid, President

IPv6 Forum

### **BROADBAND SUITE 4.0**

MANAGEMENT R4.0	NETWORK R4.0	USER R4.0
TR-124 Issue 2: IPv6 in Residential Gateway Requirements	TR-177: IPv6 for TR-101	TR-181 Issue 2 Amendment 2: Device Data Model for TR-069
	TR-187: IPv6 for PPP	
	MP 244: IPv6 Tutorial	

#### **BROADBAND SUITE 4.1**

MANAGEMENT R4.1	NETWORK R4.1	USER R4.1
<b>TR-160:</b> IPTV Performance Monitoring & Diagnostics	TR-105: G.992.3/5 ADSL2/ADSL2plus Functionality Test Plan	MR-239: Broadband Forum Value Proposition for Connected Home
TR-252: xDSL Protocol-Independent Management Model	<b>TR-127 Issue 2:</b> Dynamic testing of splitters and in-line filters with xDSL transceivers	
	TR-138: Validation of G.997.1 Parameters	
	TR-188: DSL Quality Suite	
	<b>TR-198:</b> DQS: DQM Systems and Functional Architecture and Requirements	

#### **BROADBAND SUITE 5.0 MANAGEMENT R5.0 NETWORK R5.0 USER R5.0** TR-142: Framework for TR-069 enabled TR-156: Using G-PON Access in TR-155: G-PON ONU Requirements for CPE PON devices (EPON) the Context of TR-101 TR-167: G-PON fed TR-101 Ethernet Access Node TR-200: Using EPON in the context of TR-101 MR-185: Next Generation Broadband Access MR-229: Leveraging Standards for Next Generation Broadband Wholesale Access MR-246: G-PON Tutorial TR-247: G-PON ONU Abstract Test Plan Members Only: OD-247: G-PON ONU Conformance Test Plan

# technical committee



### Technical Committee Achievements (Continued from page 5)

### Working Group Progress

In the End-to-End Architecture Working Group, the team focused on interface definitions and nodal functional requirements from Customer Premises Equipment (CPE) through Access Node, aggregation network and Broadband Network Gateway (BNG), to peering interfaces with network and application service providers. Focusing on end-to-end service delivery across this domain, the majority of the work of this group centered on developing network options for enabling IPv6 integration and migration, establishing next generation fixed and 3GPP wireless interworking specifications and developing the technical specifications that will make up the Multi-service Network Architecture release scheduled for publication in 2012.

The IP/MPLS & Core Working Group focused this year on finalizing an important mobile backhaul specification, which provides transition and migration strategies to address the 4G/LTE opportunity. The group addressed ways for IP/MPLS technology in a converged network architecture to facilitate deployment of IP, Ethernet, ATM and TDM services, thereby providing the capability to address multiple applications such as mobile backhaul, Cloud, and Data Center support.

Development of abstract test suites for ATM over MPLS continued and new work to address Ethernet over MPLS began in 2011. New work was also launched to extend MPLS into the Access Aggregation realm and Carrier Ethernet Networks. The group worked closely with the Marketing Committee to develop a series of MPLS oriented tutorials and white papers.

The Fiber Access Network Working Group was very active in the development of the abstract test plan and detailed conformance test plans for the new Broadband Forum G-PON ONU Certification Program, which was a huge and valuable undertaking for the industry. Working with FSAN, the team held a number of joint Plugfest events, progressing new module and XG-PON1 testing. The group also worked to develop energy consumption targets for fiber equipment in association with the European Union's JRC who are responsible for the Broadband Equipment Code of Conduct on energy consumption.

"In the face of growing demand for bandwidth and quality of service from our users, we have been a keen participant in the development of the Broadband Forum's new technical specifications. We hope to closely engage with members and partners regarding TR-221 to achieve a scalable, easyto-manage and cost-effective mobile backhaul architecture that delivers services rapidly, economically and with quality to our mobile customers."

Ihab Tarazi, VP Global Network Planning Verizon Communications

#### In the Metallic Transmission Working Group, the focus was on developing functional and performance

test plans for cross-vendor interoperability of broadband transmission technologies that use metallic media. This includes all types of standardized DSL technology operating over twisted copper pairs and home-networking technologies that use copper-pairs, power lines or coaxial media, such as G.hn. Energy efficient network considerations were also addressed, with new efforts on defining usage requirements for VDSL2 Low Power Mode and providing detailed input to the European Union's Broadband Equipment Code of Conduct on energy consumption.

In 2011, the VDSL2 test suite continued to evolve. Plugfests were a critical part of progressing this work and over the year there was one VDSL2 Chipset Interoperability Event and two VDSL2 System Integrator Events. New work was also launched in regards to multi-line systems (including bonding and vectoring), and splitter testing. Work on test requirements and conformance tests for G.hn, in association with the HomeGrid Forum, is planned to happen in 2012.

In the BroadbandHome<sup>™</sup> Working Group, updating the TR-069 family of specifications to be a software module management tool instead of a device management tool was a key shift to developing a more robust and expansive management protocol. Software module and proxy management unlocked the door to a more responsive management platform for machine-to-machine applications, hybrid device and user software download support. Moving the family of specifications to an XML format also meant easier provider implementations and enabled more robust interoperability. Work also progressed on TR-069 conformance, and in 2012, TR-069 testing will mature to offer official device conformance certification as part of the Broadband Forum Certification Program.

In the Operations & Network Management Working Group, guidelines are developed for operational, network management, and process aspects of broadband access networks. One key focus in 2011 was on DSL Quality Management (DQM), for which the requirements for an innovative Data Collection Function have been released. This includes a suite of test methodologies to test it, work on the description of DQM techniques progressed as well as provide operational best practices for service assurance, trouble-shooting and equipment configuration (e.g. DSL profiles). The team also worked on element manager functionality, interfaces and associated management model definition. In support of green concerns, consideration was also given to the energy efficiency aspects of network operating paradigms, facilitated by appropriate network management.

# <u>technical committee</u>

### 2011 Technical Reports

The Technical Committee was incredibly prolific in 2011. The deliverables ranged from market driven updates to existing specifications to new work. Below is the list of Technical Reports produced in 2011:

TR#	TITLE	RELEASE DATE	WORKING GROUP
TR-115 Corrigendum 2	VDSL2 Functionality Test Plan	February 2011	Metallic Transmission
TR-181 Issue 2 Amendment 2	Device Data Model for TR-069	February 2011	BroadbandHome
TR-200	Using EPON in the Context of TR-101	February 2011	Fiber Access Network
TR-105 Corrigendum 2	ADSL2/2plus Functionality Test Plan	May 2011	Metallic Transmission
TR-127 Issue 2	Dynamic Testing of Splitters and In-Line Filters with xDSL Transceivers	May 2011	Metallic Transmission
TR-155	G-PON ONU requirements for CPE	May 2011	BroadbandHome
TR-196 Amendment 1	Femto Access Point Service Data Model	May 2011	BroadbandHome
TR-106 Amendment 6	Data Model Template for TR-069-Enabled Devices	July 2011	BroadbandHome
TR-069 Amendment 4	CPE WAN Management Protocol	July 2011	BroadbandHome
TR-101 Issue 2	Migration to Ethernet-Based Broadband Aggregation	July 2011	End to End Architecture
TR-200 Corrigendum 1	Using EPON in the Context of TR-101	July 2011	Fiber Access Network
TR-221	Technical Specifications for MPLS in Mobile Backhaul Networks	October 2011	IP/MPLS & Core
TR-247	Abstract Test Plan for G-PON ONU Conformance	October 2011	Fiber Access Network
TR-105 Issue 2	ADSL2/ADSL2plus Functionality Test Plan	November 2011	Metallic Transmission
TR-157 Amendment 5	Component Objects for CWMP	November 2011	BroadbandHome
TR-260	DCF functional and performance Test Plan	November 2011	Operations & Network Management
TR-262	Femto Component Objects	November 2011	BroadbandHome
TR-196 Issue 2	Femto Access Point Service Data Model	November 2011	BroadbandHome

### **Technical Plans for 2012**

Moving forward, there are some significant areas of development on the roadmap:

- Our Broadband Forum Certification Program will grow with
  - $\circ~$  G-PON certification options including additional modules for ONUs, and XG-PON1
  - MMBI certification option for Ethernet Services over MPLS
  - New TR-069 CWMP Conformance Program launching
- End-to-End Multi-service Network Architecture work will progress
- Work on MPLS in Carrier Ethernet Networks, as well as new MPLS in Mobile Backhaul Initiative (MMBI) developments, including energy
  efficient mobile backhaul
- Network interworking and convergence work in collaboration with 3GPP will continue
- DSL testing including bonding, vectoring, G.fast requirements and DQM measures will continue
- Home networking support will continue with test suite development for G.hn progressing, and new splitter and IPTV home wiring best practices released
- Continued development (in close association with the TMF and other SDOs) of access node management models and interface specifications

We can expect new work to launch around Business Services and machine-to-machine (M2M) requirements as well. The work of the Broadband Forum is truly providing a solid basis for industry adoption of a robust remote management protocol, high quality and high speed broadband options and progress towards converged broadband network solutions. In all, 2012 promises to be another very busy and productive year.

# technical committee



### Technical Committee Achievements (Continued from page 7)

### **Liaison Program**



Robin Mersh Chief Executive Officer The Broadband Forum

**Liaison Officers** 

The last year witnessed unprecedented levels of activity between the Broadband Forum and our liaison partners around the world, as the Broadband Forum has delivered major pieces of work and developed our industry relationships. We received 83 incoming liaisons and sent out 86 liaisons to 29 different groups in 2011, as well as holding workshops with partners 3GPP and ETSI on key projects. We liaise our work around the world and as our scope of work has grown to address fiber technologies, business services, mobility and home networking requirements, the number of active partners has grown.

"Collaboration with key organizations has been important this year and has really helped the industry align and address the main issues we all face." Robin Mersh, CEO The Broadband Forum

PARTNER ORGANIZATION	ТҮРЕ	BBF LIAISON OFFICER
3GPP	Collaboration	Jaume Rius i Riu, Ericsson
3GPP2	Liaison	Doug Knisely, Qualcomm
Alliance for Telecommunications Industry Solutions (ATIS)	Liaison	Tom Starr, AT&T
Consumer Electronics Association (CEA)	Cooperation	Robin Mersh, Broadband Forum
Digital Living Network Alliance (DLNA)	Liaison	Barbara Stark, AT&T
Digital Video Broadcasting project (DVB)	Liaison	William Lupton, Pace
European Telecommunications Standards Institute (ETSI)	Cooperation	Olivier Van de Wiel, Broadcom Corporation Robin Mersh, Broadband Forum
EU JRC	Liaison	Frank Van der Putten, Alcatel-Lucent
Femto Forum	Cooperation	Greg Bathrick, PMC-Sierra Klaus Wich, Nokia Siemens Networks
Home Gateway Initiative (HGI)	Collaboration	Robin Mersh, Broadband Forum
HomeGrid Forum	Collaboration	Robin Mersh, Broadband Forum
Internet Engineering Task Force (IETF)	Liaison	Andrew G. Malis, Verizon Communications David Sinicrope, Ericsson
International Telecommunication Union (ITU-T)	Collaboration	Tom Starr, AT&T (WP1/15) David Sinicrope, Ericsson Frank Van der Putten, Alcatel-Lucent
ISO/IEC JTC1	Liaison	Robin Mersh, Broadband Forum
Metro Ethernet Forum (MEF)	Liaison	David Sinicrope, Ericsson
MultiService Forum (MSF)	Liaison	Robin Mersh, Broadband Forum
MoCA	Liaison	Robin Mersh, Broadband Forum
Open Mobile Alliance (OMA)	Cooperation	Jason Walls, QA Cafe
Open IPTV Forum	Liaison	Robin Mersh, Broadband Forum
OSGi	Liaison	Robin Mersh, Broadband Forum
Telemanagement Forum (TMF)	Cooperation	Robin Mersh, Broadband Forum Peter Adams, ADTRAN
Universal Plug And Play Forum (UPnP)	Liaison	Barbara Stark, AT&T William Lupton, Pace
Wi-Fi Alliance	Liaison	Robin Mersh, Broadband Forum
WiMAX Forum	Collaboration	Greg Bathrick, PMC-Sierra Heather Kirksey, Alcatel-Lucent

# Marketing Committee Achievements

In 2011, the Marketing Committee embraced its role as a catalyst to our industry; deploying resources to educate, liaise and promote new options and solutions, while championing new industry standards and cooperation, and expediting broadband growth. Through Strategic Communications, International Development and Marketing Communication, the team developed a valuable new library of white papers, tutorials, collateral and videos to assist in education and membership outreach efforts.

With this new focus, two new white papers and three new tutorials were developed and released to great industry response:

- MR-235 White Paper: Considerations in Broadband Architecture Moving to FMC
- MR-239 White Paper: Broadband Forum Value Proposition for Connected Home
- MR-245 Tutorial: MPLS-TP in Multi-Service Packet Network Deployments
- MR-275 Tutorial: Data Center Interconnection
- MR-244 Tutorial: IPv6 in Broadband Networks

White papers, once approved, are available to the public free of charge, and in 2011, the marketing team reached out to service provider organizations, such as OPASTCO, CABA, and SCTE, to add the reports to their libraries as well as providing them to online publications for their readers. New tutorials on the other hand, are only available to member company employees via the Forum's private website, and are presented at strategic events, regulatory body meetings and private companies through our education program. We were very pleased in 2011 to be invited to present to the United States Federal Communication Commission (FCC) a series of these tutorials covering MPLS, IPv6 and G-PON.

### **Summit and Best Practices**

The Summit and Best Practices committee focuses on securing high-level informative keynotes and birds of a feather panels for the Forum's quarterly meetings. The list of speakers and topics for the 2011 quarterly meetings is listed below:

MEETING	KEYNOTE	BIRDS OF A FEATHER PANELS
<b>Q1 Meeting</b> – Boston, USA	Azhar Sayeed, Director Solutions Engineering, Cisco Systems	"50 Billion Devices – Impact on the Network"
<b>Q2 Meeting</b> – Berlin, Germany	Taylor Reynolds, Economist, OECD	"What's Next? Analyst perspectives on Long Term Broadband Opportunities"
<b>Q3 Meeting</b> – Shanghai, China	Mr. Wei Leping, Chairman of the China Telecom Science and Technology Commission	"Top Notch Customer Experience – An Optical Dream?"
<b>Q4 Meeting</b> – Marina del Rey, USA	Doug Webster, Senior Director of Global Marketing, Cisco Systems	

### 2011 Events

Marketing Communications continued the work focused on promotion vehicles, such as tradeshows, conference appearances, press and analyst relations and enhanced web presence.

We maximized education and exposure by coupling conference speaking opportunities with educational booths at key tradeshows around the world. The results were excellent; increasing awareness of the Forum's work, stimulating new membership growth and increasing liaison interest and activity. Moreover, these events enhanced the Forum's press and analyst outreach programs by enabling us to schedule face-to-face interviews and press conferences with key industry media and analysts.



### Marketing Committee Achievements (Continued from page 9)

#### 2011 Educational Booth schedule:

EVENT	LOCATION	DATE
MPLS & Ethernet World Congress	Paris, France	February 9 - 12, 2011
IPTV World Forum	London, UK	March 22 - 24, 2011
Packet Optical Transport Networking	Paris, France	May 23 - 25, 2011
CommunicAsia	Singapore	June 21 - 24, 2011
Broadband World Forum Europe	Paris, France	September 27 - 29, 2011
ITU Telecom World	Geneva, Switzerland	October 24 - 27, 2011

### **International Development**

One of the key goals of the Forum marketing team is to empower growth markets with as much information, best practices and tools available to help them expedite and build their networks on a strong standards platform. In 2011, the key markets that the team focused on were Russia, India and growth countries in Asia. We addressed these markets through one-on-one executive meetings, tradeshow appearances, regional bylines and advertising. This effort will continue in 2012 and will expand to incorporate additional countries of focus (adding Brazil to our outreach), along with more appearances and new Forum appointed Regional Directors to target these focus areas.

### **Ambassadors**

The Ambassador committee continued to educate the marketplace about new technical solutions and inform them about the work of the Broadband Forum. The Ambassadors who are Broadband Forum subject matter experts, participated in speaking opportunities that showcased the Forum's work and new specifications. With 4 new Ambassadors added in 2011, the education efforts were truly global, and in 2011 there were 23 presentations made throughout the world.

### Special thanks to our 2011 active ambassadors who spoke at the following events:

- David Sinicrope, Doug Hunt, Nurit Sprecher & Luyuan Fang at MPLS & Ethernet World Congress - February 2011
- · David Kessens & Guillaume Gottardi at V6 World Congress -February 2011
- Robin Mersh at Convergence India 2011 March 2011
- Laurie Adams de Sá at IP&TV World Forum March 2011
- Nikhil Shah at Mobile Backhaul Asia 2011 March 2011
- Robin Mersh at Carriers World Asia 2011 March 2011
- Robin Mersh at Broadband World Forum MEA 2011 March 2011
- Nurit Sprecher & Vanessa Nacamura at Packet Transport Networks - April 2011
- Robin Mersh at FTTx Summit Europe April 2011
- Christophe Alter, Vanessa Nacamura, Nurit Sprecher & Santiago Alvarez at Packet-Optical Transport Networking - May 2011
- · Robin Mersh, Tom Starr & Mauro Tilocca at DSL Access without Barriers - May 2011

•	Peter Macaulay	at Broadband	World Forum	Asia - May 2011
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Ambassador Presentations

2

13

6

2

Americas

**Middle East** 

Europe

Asia

- Jaume Rius i Riu at Next Gen TV May 2011
- Robin Mersh at CommunicAsia June 2011
- Ole Troan at IPv6 World Congress June 2011
- Robin Mersh at FTTX & Next Generation Access June 2011
- Robin Mersh at Broadband World Forum 2011 September 2011
- Yves Hertoghs and Yakov Rekhter at MPLS 2011- October 2011
- Robin Mersh at ITU Telecom World 2011 October 2011
- Nikhil Shah at Broadband Tech India 2011 November 2011
- Peter Macaulay at FTTH Council Asia November 2011
- Robin Mersh at Broadband Russia Forum 2011 November 2011
- George Dobrowski, Christophe Alter, and Greg Bathrick at IEEE Globecom 2011 - December 2011

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# annual report 2011

### Marketing Committee Achievements (Continued from page 10)

### **Public Relations**

The Public Relations team had a tremendous amount of solid news to report in 2011, spanning from our various BroadbandSuite releases to Broadband/IPTV Growth Milestones to the launch of our G-PON ONU Certification Program.

### Below are the headlines from 2011:

- Broadband Subscription Reached 509 Million Lines Worldwide as IPTV Passes 40 Million Subscriber Milestone - January 6, 2011
- Broadband Forum Provides a Strong Start to the New Year with a New President and Continued Drive on IPv6, PON, MPLS, Connected Home and Enterprise Services - March 16, 2011
- Year-End 2010 Broadband & IPTV Report Highlights: Global Broadband
   White Pa
  Penetration is the Critical Driver behind Broadband Forum's IPv6 Solutions March 23, 2011
- India in Top Three Countries for Global Broadband Growth March 24, 2011
- HomeGrid Forum and Broadband Forum Announce First Open G.hn Chipset Interoperability Plugfest May 17, 2011
- BroadbandSuite 4.1 Release Gives Providers Tools Necessary for Enhancing Service Delivery May 24, 2011
- Broadband Forum and IPv6 Forum Work Together to Accelerate Global Activation of IPv6 June 2, 2011
- G.hn Moves from Specification to Reality June 7, 2011
- Fastest Global Broadband Growth Since 2009 June 21, 2011
- Broadband Forum Delivers Fiber Solution Set- BroadbandSuite 5.0 September 21, 2011
- IPTV Now Serves More Than 50 Million Customers Worldwide September 27, 2011
- Announcing first products to achieve Broadband Forum G-PON ONU Certification October 25, 2011
- Broadband Forum CEO Robin Mersh among Power 100 in Telecoms Global Telecoms Business November 24, 2011
- Another ONU added to growing list of Broadband Forum G-PON ONU Certification December 1, 2011
- Broadband Forum Announces Specifications for MPLS in Mobile Backhaul in 4G/LTE Networks December 8, 2011
- Broadband Forum Honors three of its Top Contributors Greg Bathrick and J. Rao Cherukuri named Distinguished Fellows, while Thomas Haag is inducted into the Forum's Circle of Excellence. - December 15, 2011

With so many strong Broadband Forum news pieces, it was no surprise that our global coverage was triple that of past years. We also found more companies and other organizations reporting how they are aligned or engaged in Broadband Forum work- all great indications of the impact that the Forum is having on the industry.

### Marketing Plans for 2012

### As the Marketing Committee looks ahead to 2012, focus areas include:

- Promoting the next wave of BroadbandSuite releases; MPLS, multi-service Architecture, TR-069 Conformance and G-PON Certification related work
- Continuing to develop and promote our expanding library of white papers and tutorials
- Driving awareness of the continued advancements in DSL technology and options in broadband deployments, especially when paired with fiber in hybrid deployments
- Establishing awareness of our work related to broadband convergence and mobile backhaul
- Deploying our new video library and social media tools in support of TR education, tutorial promotion and press announcements

Continued byline and press outreach will ensure our work reaches the industry audience that we want to inform and empower. Efforts will continue to be made to place our white papers in external technology libraries and our tutorials in key conferences around the world to reach the highest number of potential beneficiaries.

# marketing committee

PRESS OUTREACH PROGRAM	2010	2011
Overall coverage tracked	1292	3732
Coverage – BBF press release driven	1051	3404
News releases issued	9	17
Media interviews	34	104
Video/broadcast interviews	4	14
Analyst briefings	5	7
BBF bylined Articles / Features	13	13
Coverage - General industry mentions	125	262
Coverage - Member reference	65	66
Press conferences	3	6
White Paper placements	6	5





### **Testing and Certification Program**

Since 1994, the Forum has had an objective to establish interoperability in the broadband marketplace. Initially focused exclusively on DSL, the scope of that commitment extended with market demand to address DSL, fiber, MPLS, TR-069 and home networking related testing.

In 2011, the success of G-PON technologies took a significant step forward with the launch of the market's first ever G-PON Certification Program. To help the industry expedite fiber network rollouts, this global G-PON ONU Certification program will pave the way for swift expansion of superfast broadband and the development of new technologies. It is based on test plans developed by the Broadband Forum and work undertaken jointly with FSAN (Full Service Access Network).



The BBF.247 certification program is open to G-PON ONU products with Ethernet interfaces and is based on the Broadband Forum's OD-247 test plan. It tests conformance to TR-156 using OMCI as defined in the ITU G.988, which are the most critical standards to interoperable implementations. Additional test cases and modules for other configurations and functionalities

will be added in the future.

In 2011, eight member companies' products successfully passed the new Broadband Forum G-PON ONU Certification Program. These include:

Alcatel-Lucent Broadlight

cent Cambridge Industries Group Ltd. Huawei Technologies Co., Ltd. PMC-Sierra PT Inovação S.A. Tecom Co., Ltd. ZTE Corporation "Achieving high levels of confidence in device and equipment interoperability is very important for Service Providers, end Customers and Equipment Vendors. The Broadband Forum's work in this area is a vital enabler for delivering timely and cost-efficient high speed broadband." Kevin Foster. President

The Broadband Forum

For a complete list of certified products or to register for certification please see: http://www.broadband-forum.org/technical/test\_cert\_programs.

### The Broadband Forum Membership and Operations

The Broadband Forum has been at the forefront of many of the improvements happening in the broadband industry. Despite the economic climate remaining challenging, our membership was again stable in 2011, and we added new service providers, as well as fiber and wireless focused members with our new efforts. Our regional base continues to align with the growing broadband markets, such as Asia. The graphs on the right show the diverse regional and industry segment breakdown.

As it is every year our focus in 2011 for Forum operations was to ensure continued member satisfaction, and that services were delivered efficiently and cost effectively. 2011 has seen continued success with key objectives met and best practices maintained.

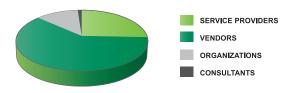
The website continues to be enhanced with new online member tools and increased support for volunteer editors. This should facilitate easier interface with the contribution database and improve the workflow of the Forum.

In challenging economic times the Forum continues to strive for the utmost value for the investment our members make in standards. The Forum wants its members

Regional Membership



**Industry Segment Breakdown** 



to continue to consider Forum membership the best value for money in the industry and will continue to maintain a lean and efficient structure.

### **New Project Process**

A new project initiation process has been launched to better assess the drivers for new work proposals. In order to better structure the Forum's work, ensure optimal coordination between all Working Groups and to better prioritize the work, members are encouraged to follow a standardized process when proposing new work items. This simple, yet effective process for starting new projects ensures maximum relevance and timeliness of our projects.

# Member Recognition

In 2011 many of our members were recognized for their valuable contributions to the industry and specifically to the Broadband Forum. Below are the lists of awards and recipients. We thank each person and each company for their outstanding support.

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### **Distinguished Fellow**

The Distinguished Fellow title is bestowed by the Broadband Forum to exceptional individuals who have over time provided a major influence on the direction and success of broadband development. These are the key individuals who help the Forum chart new technology solutions, drive best practices to overcome deployment obstacles, and whose vision continues to inspire our industry's growth.

- J. Rao Cherukuri, Juniper Networks Broadband Forum IP/MPLS & Core Working Group Chair
- · Greg Bathrick, PMC-Sierra Broadband Forum Board Member and BroadbandHome Working Group Co-Chair

### **Leadership Award**

The Leadership award is given to outgoing, commendable Working Group Chairs or Board members. These individuals, who have dedicated their time and leadership ability to establishing our success, have gone above and beyond the call of duty within the Broadband Forum and we thank them for their service.

- Michel Borgne, France Telecom
- Lynn Merril, OPASTCO

### **Circle of Excellence**

The Broadband Forum recognizes the exceptional contributions of its members through the "Circle of Excellence" award which is awarded at our quarterly meetings. The recipients inducted into the Circle of Excellence are determined by membership nomination with selection based on leadership, diligence, or having provided a contribution that was foremost in advancing the Forum's mission.

- Thomas Haag, Deutsche Telekom
- Elisa Bellagamba, Ericsson
- Aleksandra Kozarev, Lantiq
- Nurit Sprecher, Nokia Siemens Networks
- · Lincoln Lavoie, UNH InterOperability Lab

### **Outstanding Contributor Award**

Once a year, at the Annual Meeting, the Outstanding Contributor awards are given to individuals who, during the previous year, went above and beyond the call of duty within the Forum Working Groups by making many contributions throughout the year as well as effectively moving the consensus process forward. Both the quantity and quality of the contributions are taken in to consideration. Awarded top contributors were:

- Herman Verbueken, Alcatel-Lucent
- Christopher Croot, BT
- Yves Hertoghs, Cisco Systems
- Thomas Haag, Deutsche Telekom
- Robert Frazier, Ericsson
- Alan Kavanagh, Ericsson
- John Blackford, Pace
- Lincoln Lavoie, UNH InterOperability Lab

# member recognition



### Membership List 179 Total Members as of December 31, 2011

#### **Principal Members (91)**

A1 Telekom Austria AG Actelis Networks Actiontec Electronics ADTRAN ADVA Optical Networking Ltd Advanced Digital Broadcast S.A. Airvana, Inc. Alcatel-Lucent Allied Telesis AT&T Atheros Communications AVM Aware Belgacom Bell Canada Broadcom Broadlight ΒT Cable & Wireless Worldwide Calix Networks CenturyLink China Mobile Communications Corporation China Telecom Chunghwa Telecom Labs Cisco Systems Consona Corporation Cortina Systems, Inc. Cyta D-Link Deutsche Telekom DISA DragonWave Inc. **ECI** Telecom Ericsson Fastweb SPA France Telecom Fujitsu Google, Inc. Hellenic Telecommunications Organization Hitachi Communication **Technologies America** Huawei Technologies Co., Ltd. **Ikanos** Communications Intel Iskratel

Ixia JDSU Juniper Networks Keymile KPN Lantiq LSI Corporation MegaPath Inc. Motorola Mobility National Broadband Network NFC Netgear Nokia Siemens Networks GmbH & Co. KG NTT Corporation Pace PMC-Sierra Portugal Telecom Inovação, SA Qualcomm Incorporated **Qwest Communications RAD Data Communications** Ralink Technology Corporation Sagem Communications Samsung Electronics Co., Ltd. Sigma Design Sky Network Services Softbank BB Corp. Spirent Communications Sumitomo Electric Industries Swisscom (Switzerland) Ltd. TDC A/S Technicolor Tekelec **Telcordia Technologies** Telecom Italia S.p.A **Teledata Networks** Telefónica Standards Telekomunikacja Polska S.A. Telenor TeliaSonera **TELUS** Communications, Inc. **Tollgrade Communications** TTNet A.S. Verizon Communications Vodaphone Group Services Westell Zarlink Semiconductor

### **Small Company Principal (36)**

5V Technologies, Ltd. Alphion Applied Network Solutions, Inc. Asoka USA Corporation ASSIA Inc. Axiros BandWD Cambridge Industries Group Limited Ciminko ClearAccess, Inc. Dimark Technologies, Inc. FANTC East by North Fine Point Incognito Software Iometrix Iphotonix LAN Marben Products Metanoia Communications Mitsubishi Electric RCE France MT2 Network Automation mxc AB **Ping Communications Real Communications** Sparnex Instruments Starbridge Networks, L.L.C. Tail-f Systems **Tejas Networks** Telebyte, Inc. TRaC Global Ltd **Tracespan Communications** UNH InterOperability Lab Viagénie Wilcom

#### Auditing (38)

Works Systems

Agama Technologies AirTies Allied Data Technologies Arcadyan Technology Corp. Askey Computer Bouygues Telecom Comtrend Corporation Edimax Technology Co., Ltd EXFO Fiberhome Telecommunications Technologies Co., Ltd. Friendly Technology (FTL) Ltd. Gemtek Technology Co. Jungo KDDI R&D Laboratories, Inc. Mquadr.at Nemko AS **OPT New Caledonia** QA Café Rancore Technologies Pvt. Ltd. SaskTel SELEX ELSAG S.p.A ServComm Inc. Shenzhen Gongjin Electronics Co., Ltd Singapore Telecommunications Limited SMC Networks Suttle Tecom Co., Ltd **Telecom New Zealand Telekom Slovenia** Telkom SA Ltd Telstra Corporation Ltd. Tilgin **TP-Link** Transmode Triductor Technology Westermo **Zhone Technologies** Zyxel Communications

#### Associate (14)

Alabama State University Anacom ETRI Fraunhofer Institute Fundacao CPqD ITRI Layer123 National Exchange Carrier Association National Media and Infocommunications Authority Point Topic Research Institute of Telecommunications Transmission (RITT) Stanford University Tecnalia Research & Innovation TNO

**ZTE** Corporation

## **Financial Report**

Auditors John Waddell & Co, Certified Public Accountants, have audited the financial statements of the Broadband Forum. The following gives an overview over the key financial figures and indicators of the Broadband Forum.

December 31	2011	2010
Assets		
Cash	\$ 545,678	\$ 818,393
Temporary cash investments	1,080,000	1,055,000
Accrued interest receivable	4,316	2,756
Accounts receivable	-	7,500
Prepaid expenses	16,766	1,754
Investments	754,607	782,204
Total Assets	2,401,367	\$ 2,667,607
Liabilities		
Accounts payable	\$ 26,569	\$ 195,596
Deferred membership dues	444,450	440,632
Total Liabilities	\$ 471,019	\$ 636,228
Net assets – unrestricted	1,930,348	2,031,379
Fotal Liabilities and Net Assets	\$ 2,401,367	\$ 2,667,607

ecember 31	2011	2010
Revenue		
Membership dues	\$ 1,267,649	\$ 1,193,398
Meetings	355,620	346,480
Sponsorship fees	69,700	83,153
Investment income	42,585	78,161
Other income	-	2,079
otal Revenue	\$ 1,735,554	\$ 1,703,271
xpenses		
Meetings	\$ 689,889	\$ 591,077
Trade shows	64,810	42,606
Management fees	581,367	583,011
Marketing and public relations	302,064	276,526
General and administration	110,486	90,347
Technical committee	67,624	91,562
Strategic Initiatives	12,384	
Miscellaneous/contingency	7,961	6,855
Total Expenses	\$ 1,836,585	\$ 1,681,984
Change in Net Assets	(101,031)	21,287
let Assets – Unrestricted		
Beginning of year	2,031,379	2,010,092
End of year	1,930,348	\$ 2,031,379

# financial report

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### 2012 Membership Levels

The Broadband Forum is an international non-profit industry association working cooperatively to develop the full potential of broadband. We forge a powerful alliance of service providers and companies from virtually every sector of communications, focused on engineering smarter and faster broadband connections. Our work defines best practices for global networks, enables service and content delivery, establishes technology migration strategies, engineers critical device & service management tools, and is key to redefining broadband.

### Principal Membership - \$ 10,950 US

- Attendance to all annual, general and committee meetings of the Forum
- One vote each on all Forum issues, technical reports, and marketing reports
- Access to all working documents, contributions, technical reports, and meeting minutes
- Eligibility to run for Board of Directors and Committee officer positions
- Eligibility to submit Technical Committee and Marketing Committee contributions
- Eligibility to take part in Forum testing events and programs (including those co-hosted with other organizations)
- Subscription to all Broadband Forum email mailing lists

#### Small Company Principal Membership - \$ 5,250 US

All the privileges listed above for a Principal Member

Note: In order to allow for a more cost-effective membership for medium-sized companies, the Board of Directors has decided to increase the annual revenue threshold for the Small Principal member category. Starting from 2012, this threshold is set at \$20 million USD, which means Small Company Principal Members must have had annual revenues under \$20 million USD in the previous year. They are required to submit a letter from their CEO stating this.

### Auditing Membership - \$ 4,250 US

- Attendance to all annual and general (i.e., Summit and Plenary) meetings of the Forum
- Access to all working documents, contributions, technical reports, tutorials and meeting minutes
- Subscription to all Broadband Forum email mailing lists
- Eligibility to take part in Forum testing events and programs (including those co-hosted with other organizations)
- Auditing members may NOT attend committee meetings (i.e., Technical and Marketing Working Group meetings) of the Forum and are NOT eligible to submit Technical Committee or Marketing Committee contributions or vote on Forum issues, technical reports or marketing reports

#### Associate Membership - \$ 1,100 US

- Attendance to all annual, general and committee meetings of the Forum (but not eligible to vote)
- Access to all working documents, contributions, technical reports and meeting minutes
- Subscription to all Broadband Forum email mailing lists

Note: Associate Members must be not for profit or educational institutions. Institutions will be approved for membership annually by a majority vote of the Board of Directors.

### **Broadband Forum Staff**

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