

Broadband Forum G-PON ONU Certification Program



2012 Update



Broadband Forum

Engineering smarter & faster connections

Architecting a connected lifestyle

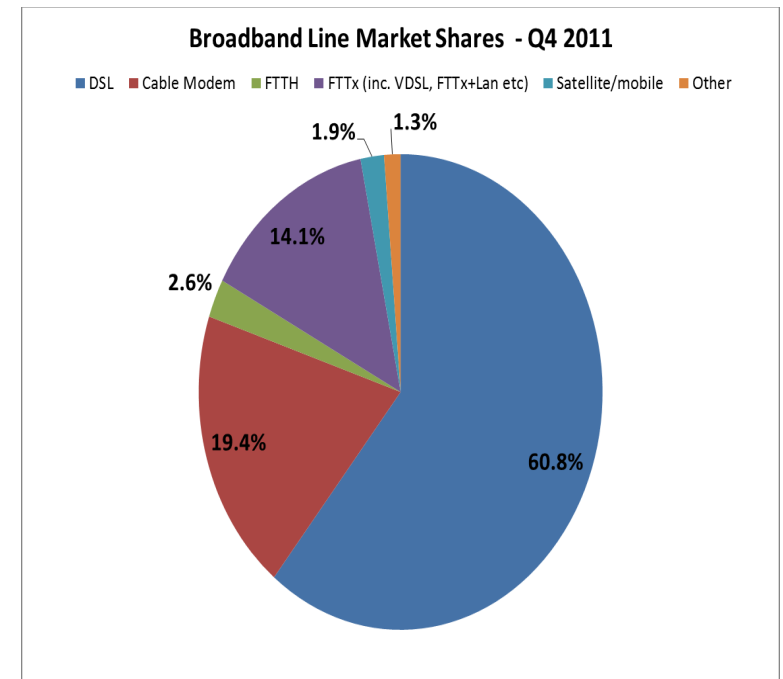
- Defining best practices for global networks
- Enabling multi-service and content delivery
- Establishing technology migration strategies
- Engineering critical device & service management tools
- Redefining Broadband

● Who are we?

- Industry consortium made up of approximately 200 service providers, vendors, consultants, academia and test labs
- Predominant broadband industry forum since **1994**
- Engineer technology solutions to help service providers achieve standards based, economical and effective broadband deployments

Hybrid fiber - fastest growing access, yet the demand for super fast broadband is still not being fully met by providers

| Technology | 2010Q4 | 2011Q3 | 2011Q4 | Quarter % growth | Year % growth | Market share |
|---------------------------------|-------------|-------------|--------------------|------------------|---------------|--------------|
| DSL | 335,519,895 | 357,550,075 | 363,068,656 | 1.54% | 8.21% | 60.78% |
| Cable Modem | 105,796,376 | 113,140,990 | 115,621,123 | 2.19% | 9.29% | 19.36% |
| FTTx (inc. VDSL, FTTx +Lan etc) | 62,014,189 | 78,349,972 | 83,937,396 | 7.13% | 35.35% | 14.05% |
| FTTH | 12,882,737 | 14,822,215 | 15,661,790 | 5.66% | 21.57% | 2.62% |
| Satellite/mobile | 9,455,883 | 10,826,790 | 11,205,269 | 3.50% | 18.50% | 1.88% |
| Other | 6,159,960 | 7,494,961 | 7,828,402 | 4.45% | 27.09% | 1.31% |



G-PON interoperability is critical

- Many strong market drivers:
 - Facilitate competition and expedite market growth
 - Reduces testing burden on service providers and vendors alike
 - Address various operators' services (residential, business, mobile backhaul...) in multi-vendor environments
 - Enable business models where the retail service provider may not operate the access network
- G-PON Certification is key
 - Indicates BBF certified products are world-class and road tested
 - Verifies market readiness of ONUs

Value to the Industry Players

To Service Providers

- Reduced time to market of new services, thereby improving Providers' Return On Investment (ROI)
- Certification based on international standards aligned with architectures and protocols that reflect real world network requirements
- Assurance of protocol compliance allows service providers to dedicate resources to address their specific requirements
- Streamlined selection process; helps service providers identify & eliminate non-compliant devices quickly
- Standardized element of RFPs, thereby reducing service provider testing responsibility and expense

To the Vendor Community

- Simple cost effective formula: **Test once and reuse results!**
Shortens test cycles and saves testing resources/expense
- Way to establish a strong position in the global market
- Presents a strong quality indication for end customers
- Offers clear and robust test cases; better specifications, more efficient developments

Providers & Vendors Speak Out & Agree- Certification benefits the industry & their companies

“This certification is key to speed up our FTTH deployments. It reduces dramatically the amount of specific testing needed before we choose and deploy new equipment. It will enable next generation systems to come to the market faster and with interoperability from day one”

“Our customers wish to have highly integrated CPE (not separate ONU, router, ATA etc.) at a price and functionality point of their choosing. Certifying compliance to OD-247 greatly assists in meeting our customer's requirements for their preferred G-PON commercial and operating model.”

“Certifying compliance will enable us, as G-PON testing equipment manufacturers, to show the level of compliance of the OLT/ONUs that our customers would like to purchase.”

“A BBF G-PON certification program allows us to overcome hurdles of non-compliance and enables us to enter labs in a much faster way.”

“Certifying compliance [to BBF.247] provides a higher level of confidence in interoperability when selecting and deploying new equipment for existing and greenfield networks.”

“Certifying compliance [to BBF.247] enables us to have the confidence to invest knowing that we are leveraging a worldwide volume supply of interoperable equipment from competing vendors”

Key Standards efforts for G-PON interoperability

- Since 2009, FSAN and the Broadband Forum joined forces to create a competitive environment for G-PON
 - FSAN *IOP Task Group* in charge of Physical and TC layers
 - Broadband Forum *Fiber Access Network Working Group* in charge of upper layers
 - Began joint plugfests
 - Developed a G-PON conformance test suite (OD-247)
 - All ingredients for true interoperability are now specified
 - **TR-156** and **TR-167** specify architecture and minimum functionalities that OLT and ONT/ONU must implement respectively
 - **TR-142** specifies the boundary between OMCI and TR-069 domains for ONT management
 - **OMCI Implementers' Guide** (*G.Imp984.4*) defines how exactly the OMCI protocol must be used to manage TR-156 ONT/ONU
- ➔ To allow plug and play interoperability, G-PON systems **MUST** comply with the above standards!

G-PON ONU Certification Program is Launched

Expediting market
deployment of fiber
networks



The Broadband Forum G-PON Certification Program

- Industry's first G-PON certification program based on test plans developed by the Broadband Forum with support of FSAN and ITU-T
 - Open to G-PON ONU products with Ethernet interfaces and is based on the OD-247 test plan
 - Proves conformance to TR-156 using OMCI as defined in the ITU G.988, which are the most critical standards to interoperable implementations
- ONUs with other types of interfaces/features will be addressed in the future
- ONU/OLT Interoperability Test Plan in development, and the ONU Conformance Certification will be a requirement to participate in the Interoperability test program

Program basics

- Program open to Broadband Forum members only
 - Certificate granted to compliant (passing all mandatory and conditional mandatory tests) products
 - Allowed to use BBF certification logo
 - Option for companies to have their certified products listed on Broadband Forum's global registry
- Testing is available through an approved independent testing agency
 - LAN (presence in France and China)

Announcing first certified products!

Each company below has a product that is now certified

Alcatel·Lucent



BROADLIGHT



HUAWEI



INOVAÇÃO

PMC
PMC - SIERRA

ZTE 中兴



TECOM
Converging Your Networks

To register for certification testing



- Contact LAN Laboratories at
 - <http://www.lanpark.eu/>
 - +33 (0)2 47 43 25 00

**Questions?
Thank you for attending**

For more information,
visit us at

<http://www.broadband-forum.org>

