

Overview of the BBF access-network solution

BBF/SIEPON

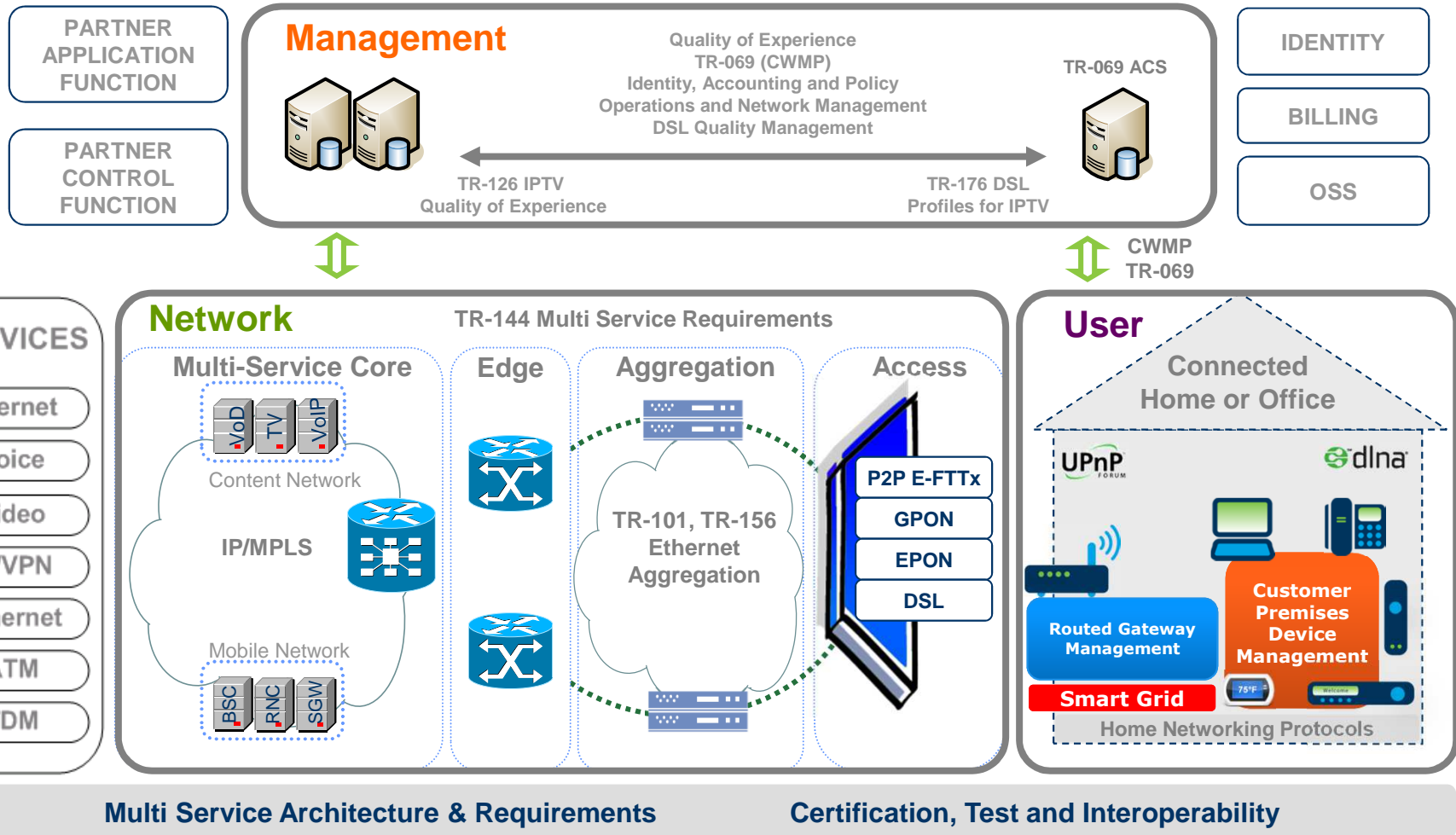
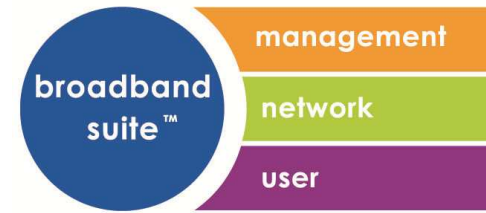
Joint Workshop

Christophe Alter

Chair BBF Technical Committee



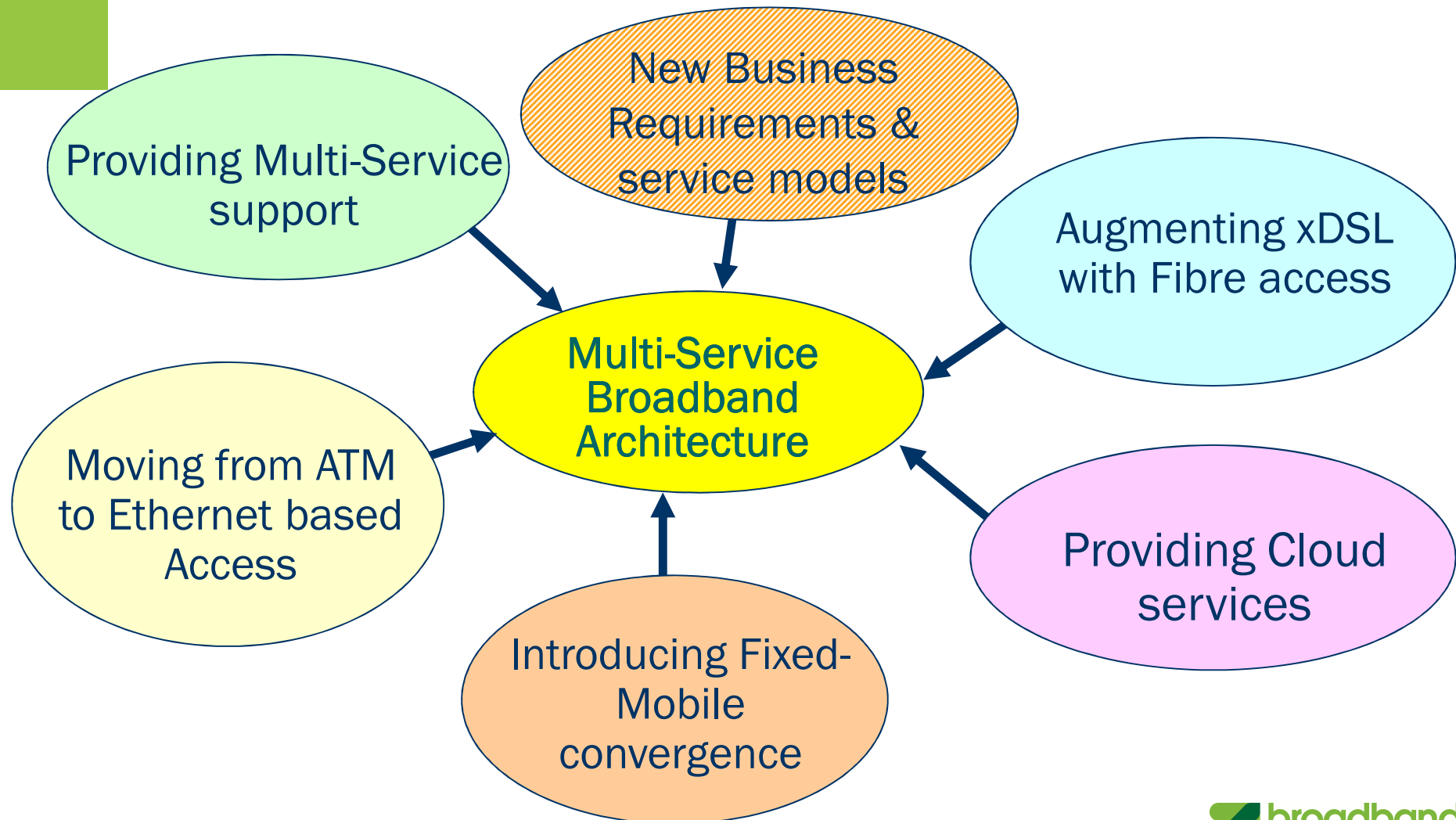
Broadband Forum Scope



Introduction

- The BBF has been driving the evolution of Broadband Network Architecture for the last 14 years
 - this has involved all the major stakeholder in the industry
- BBF Technical Reports and Interoperability Programs are playing a critical role in helping the industry face the new challenges
 - Choices between options have to be made, solutions have to be end-to-end and they have to be proven
- Interoperability, manageability and integration in operators environments are key requirements
- BBF is open to all technologies and helps convergence

Challenges faced by Network Operators



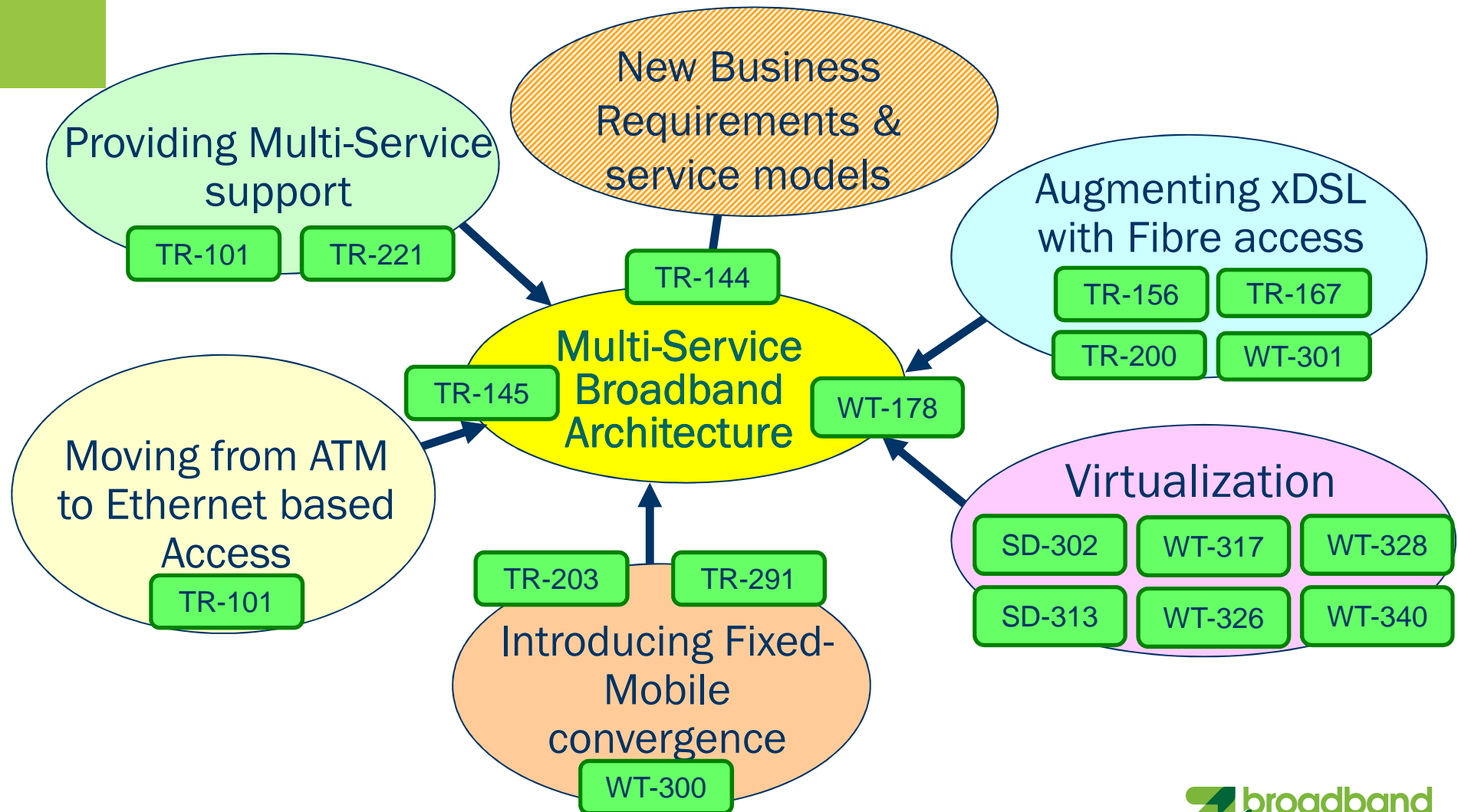
Motivations for a Multi-Service Architecture - I

- **Support for different customer types, markets and services:** residential, retail, business, wholesale, fixed, mobile, cloud/virtualized services ***over a common network architecture***
- **Simplification of network architecture:** an end-to-end architecture based on IP/MPLS and Ethernet with a well-defined migration path
- **Multi technology Access support:** xDSL, Ethernet, GPON, EPON, FTTdp, Microwave wireless, legacy voice, wavelength access for business customers, TDM circuits
- **Multi-Edge support:** the ability to source traffic to a given subscriber from multiple, different, Service Edges
- **Enhanced Scalability:** moving IP Edge Nodes closer to customers allows the connection of more customers to the aggregation network

Motivations for a Multi-Service Architecture - II

- **Enhanced availability:** use of OAM and an appropriate control plane for automatic protection and/or restoration
- **Seamless connectivity:** integration of access, aggregation and core networks
- **Operational enhancements:** migration to a converged packet based access and aggregation network can improve the end-to-end provisioning process by minimizing touch points
- **Enhanced support for Wholesale services:** to meet regulatory requirements (e.g. Active Line Access) and support non-vertical business models
- **Fixed-Mobile Convergence (FMC):** to support a single handheld device for both fixed and mobile access

Roles played by BBF Reports



Fiber integration in triple play deployments

- ☑ Replicate over fiber the multi-services architecture adopted over DSL
- ☑ Leverage platforms and processes used in existing deployments
- Ethernet interfaces (U/V/W) similar to TR-101
- TR-069 and OMCI are perfectly complementary for customer device management

External interfaces shall be agnostic to particular access technologies - as much as possible.

Flexibility to support various business models and device types

- PON used in access or aggregation networks
- Single Family Units, Single Business Units, Multi Dwelling Units, Multi Tenant Units...
- Ethernet or DSL last drop
- ONU and Routing Gateway as separate devices or integrated into one box

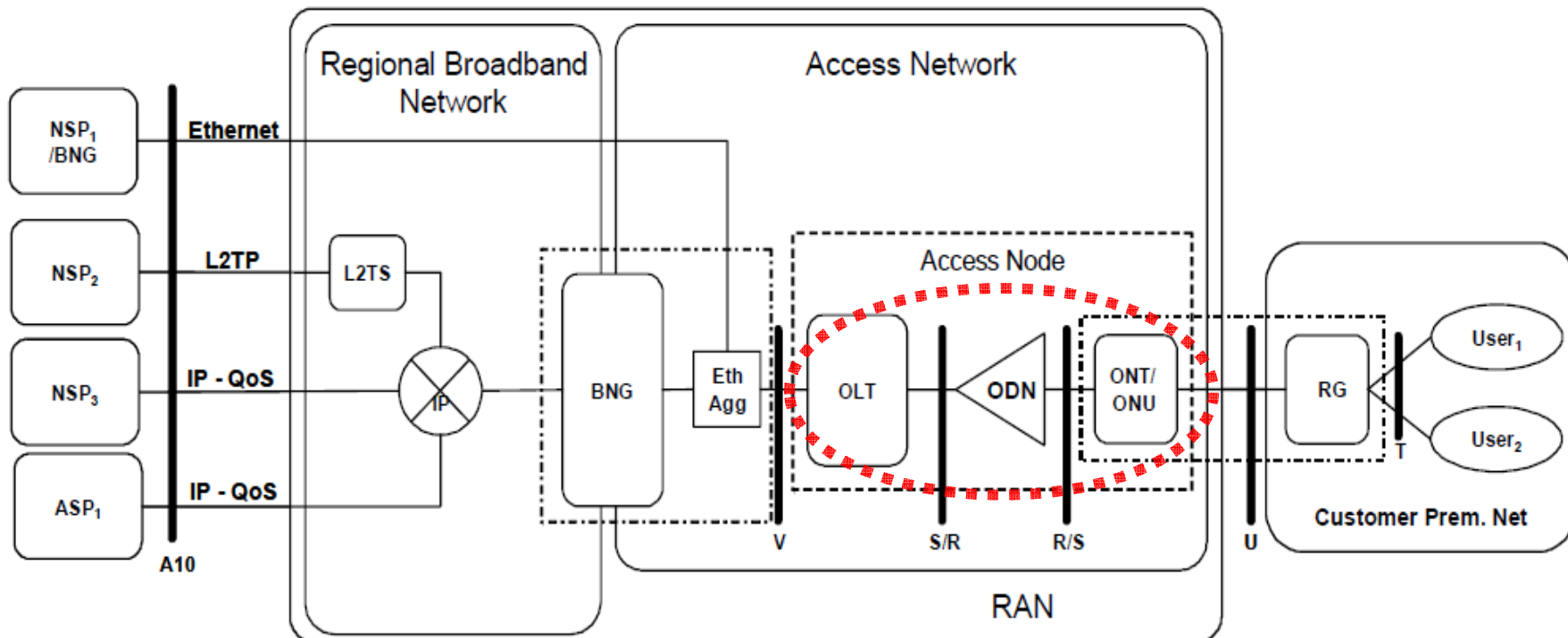
Maximize commonality of architecture to reduce integration costs and guarantee interoperability

OLT-ONU Interoperability

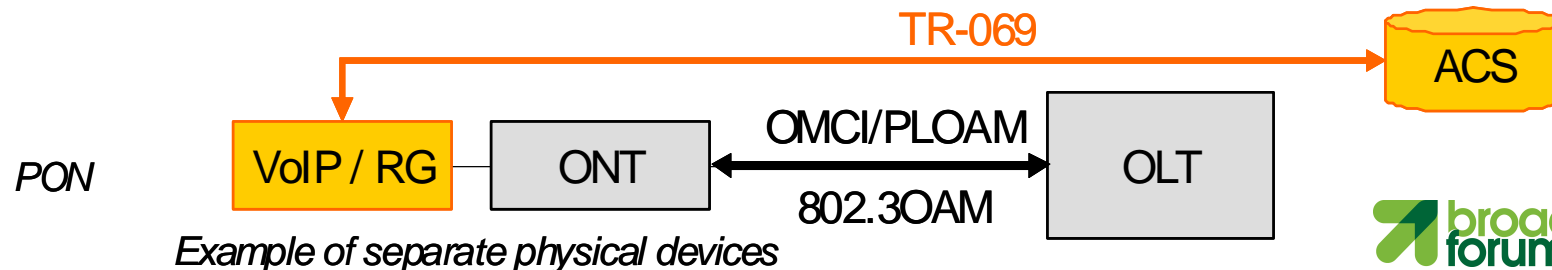
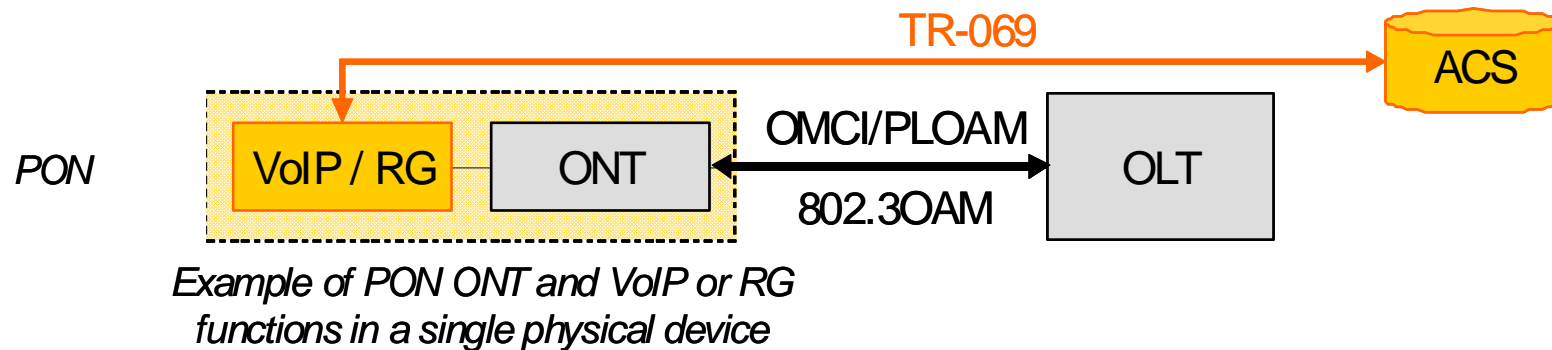
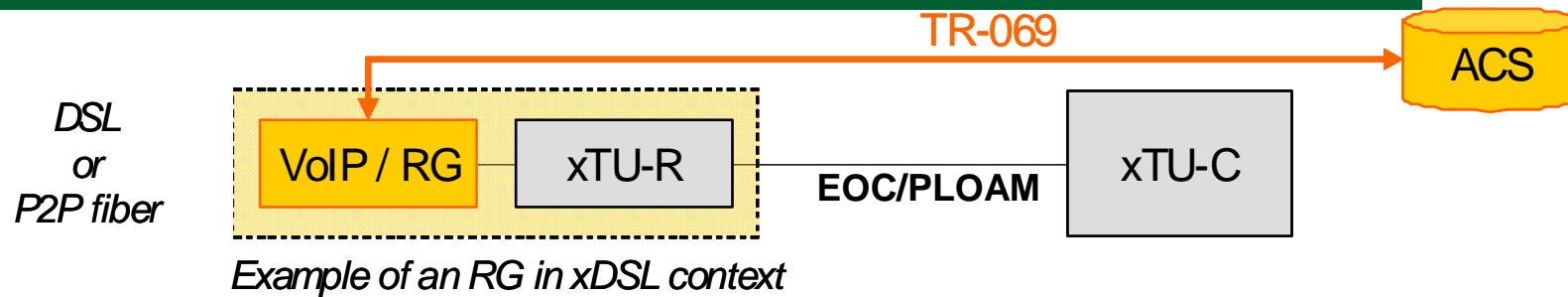
- ☑ Allow OLT and ONU to be provided independently
 - By different vendors
 - By different operators
 - Ultimately by end users themselves (retail model)
- Functional cut between PON OLT and ONU specified by BBF TR-156 (G-PON access), TR-167 (G-PON aggregation) and TR-200 (E-PON).
- The BBF.247 certification test plan eliminates OMCI implementation options for supporting TR-156 and TR-167 architectures: creates true multivendor interoperability.

TR-156 and TR-200: GPON and EPON access

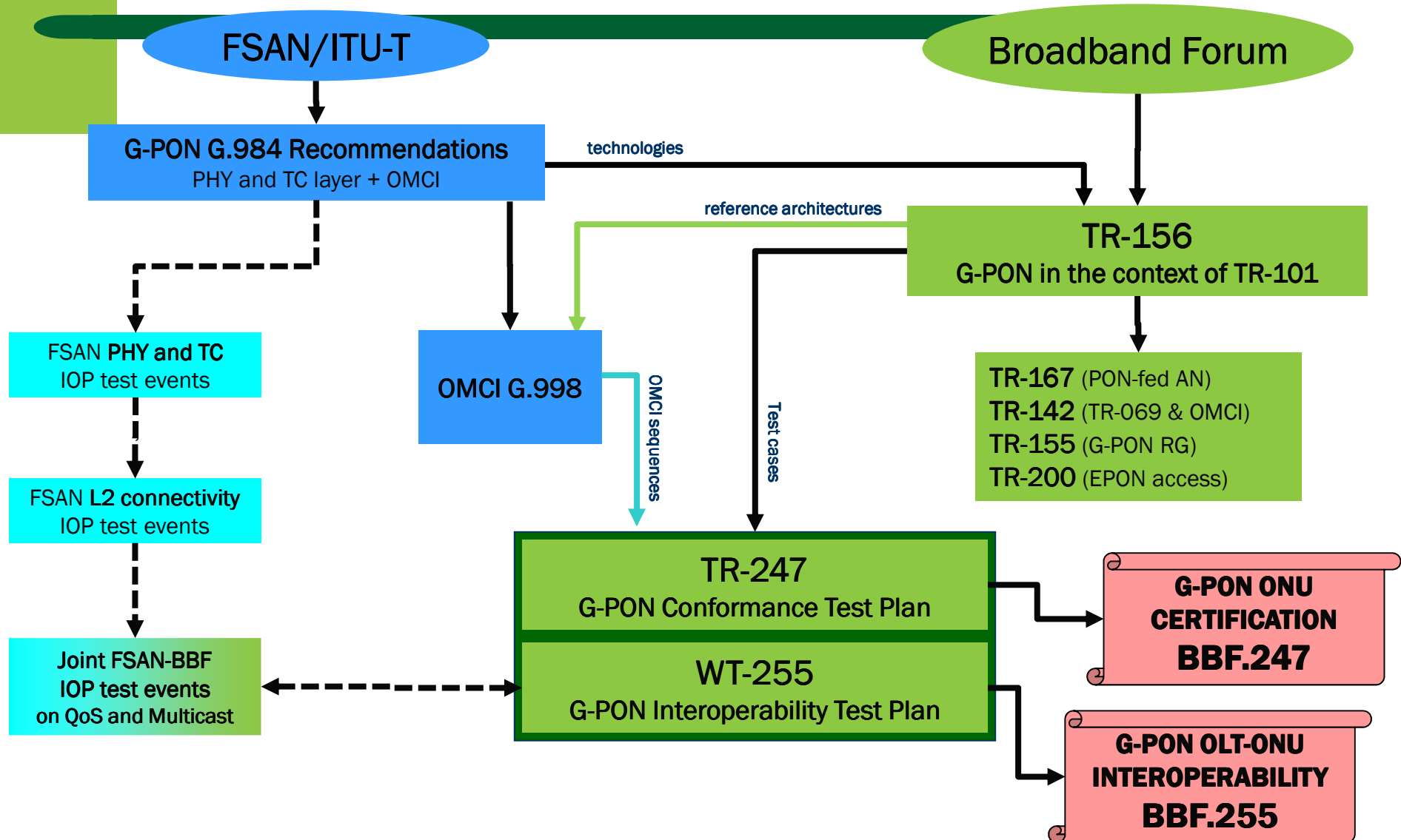
- The entire PON system performs the role of an Access Node as specified by TR-101
 - U and V reference points remain unchanged
 - Aims to integrate seamlessly into broadband service providers' deployments



TR-142i2: fiber devices management protocols domains



Fiber access standards collaboration



Broadband Forum G-PON ONU Certification Program

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 FSN and ITU-T
 - Open to G-PON ONU products with Ethernet interfaces and is based on the TR-247 test plan
 - Proves conformance to TR-156 using OMCI as defined in the ITU G.988, which are the most critical standards for interoperability
- ONUs with other profiles and types of interfaces /features will be addressed in the very near future, along with extensions for XG-PON 1
- ONU/OLT Interoperability Test Plan in development, and the ONU Conformance Certification will be a requirement to participate in the Interoperability test program

Why have a Certification Program?

- Internationally respected organization with 17 years of interoperability program excellence
- Service Provider driven test plans/required in global RFPs
- Shortens test cycles. Offers single round of universally recognized tests-decreasing costs
- Helps vendors competitively position products globally
- Independent standards based certification creates a common language
- Eases the launch of products and expedites fiber deployments
- **Having BBF.247 certified ONUs insures that vendors' products are easily integrated by any G-PON OLT manufacturers**

G-PON certified products!

Each company below has a product that is now certified



Program basics

- Program open to Broadband Forum members only
 - Certificate granted to compliant products (passing all mandatory and conditional mandatory tests)
 - 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 approved independent testing agencies
 - LAN laboratories (facilities in USA, China and France)

Thank you!

