

Analysing the Key Interoperability Challenges Facing the FTTx Industry

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EANTC Introduction

Providing independent network quality assurance since 1991

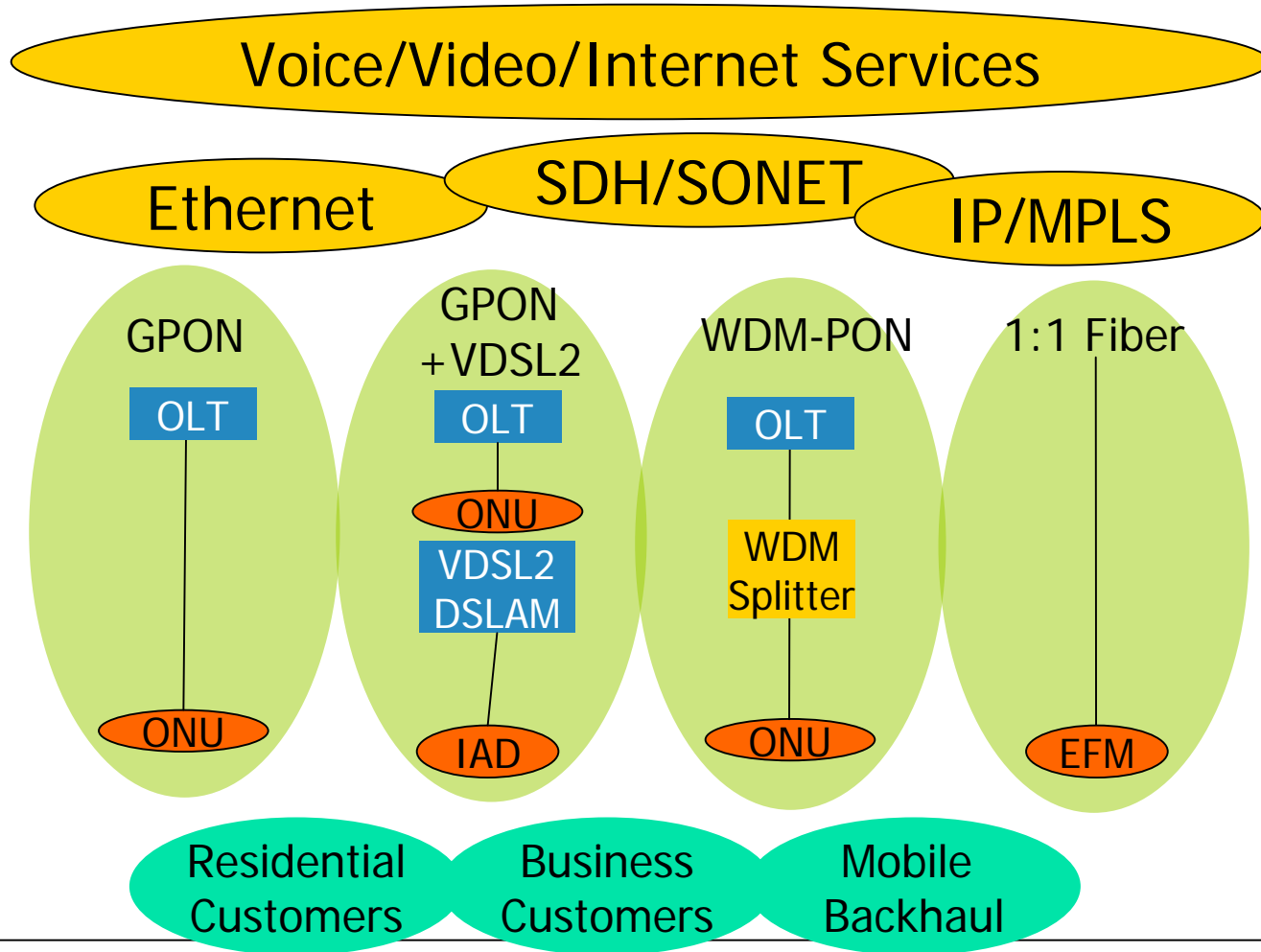


EANTC Berlin, Germany

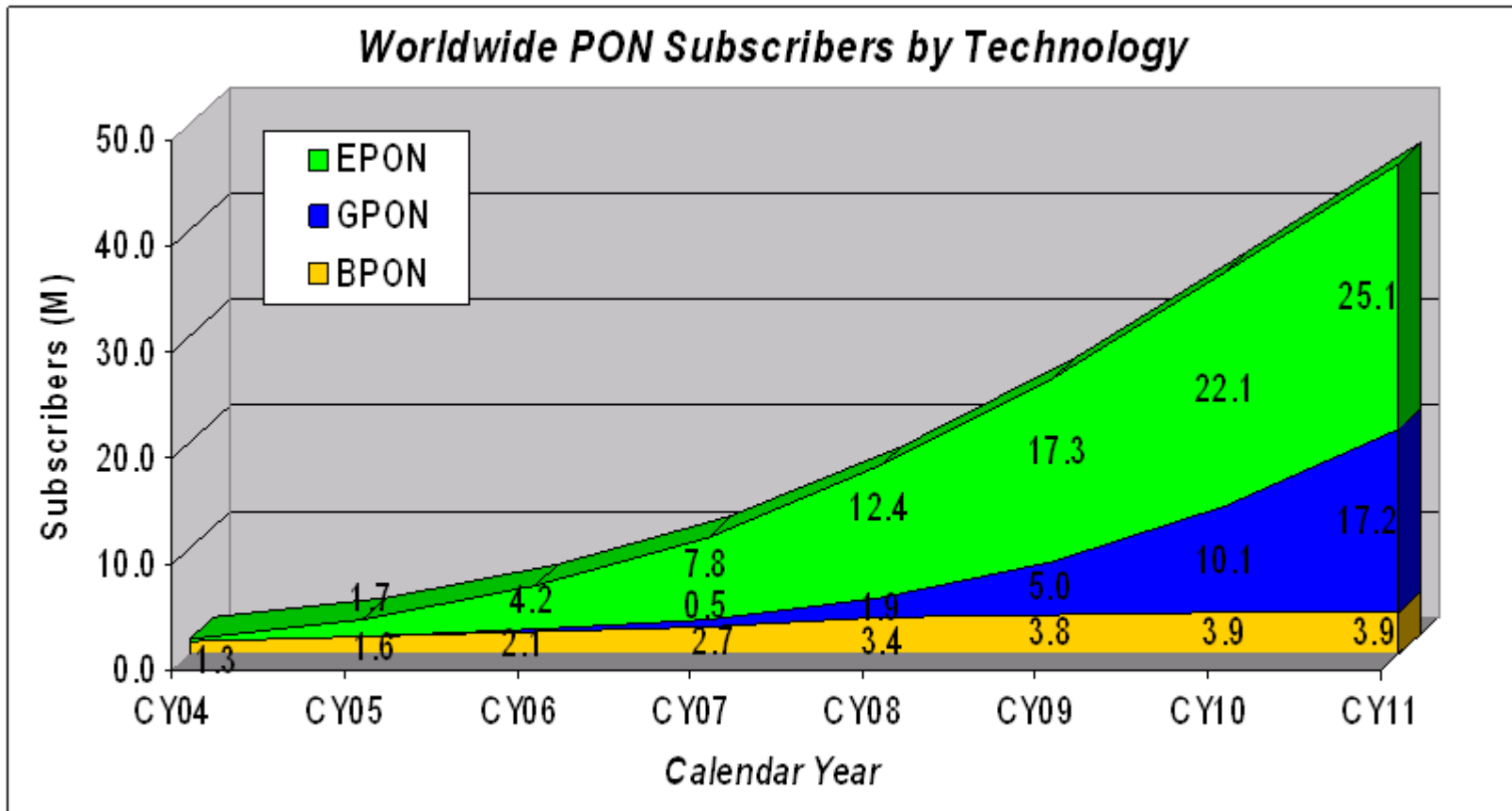


- Test and certification of network components for manufacturers
- Network design consultancy and proof of concept tests for service providers
- Request for Proposal (RFP) support and life cycle testing for large enterprises and government organizations

Fiber Access Technologies Today



Projected PON Deployment

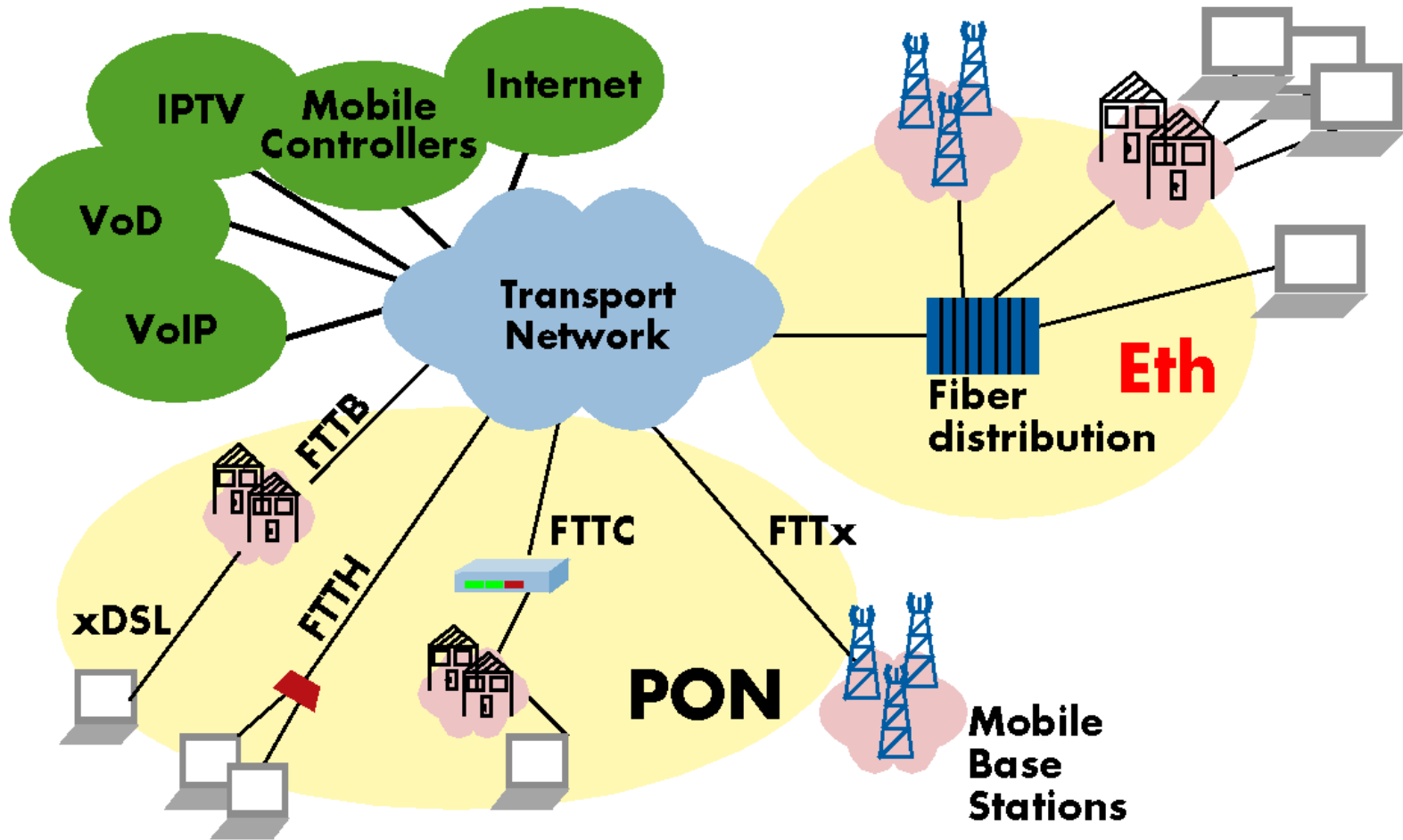


Source: Infonetics Q308 PON/FTTH Report

The Need for Interoperability Testing

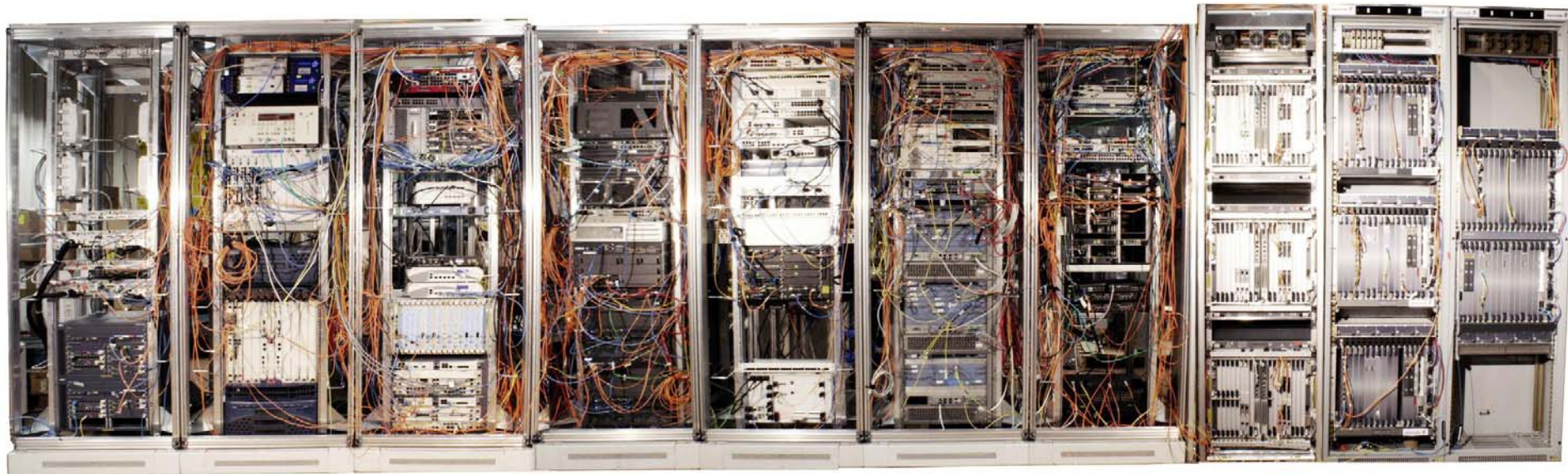
- Service providers increasingly employ multi-vendor strategies in the access
 - Allows best-of-breed selection, resiliency against roadmaps and changes in pricing models
 - Common in DSL, 1:1 fiber
 - New in PON – traditionally single-vendor infrastructures, not feasible for 2nd generation deployment -- ONT and OLT need to become multi-vendor interoperable
- Triple play services require deep dive in interoperability testing for service quality
- Regulators require uniform, standards-based interfaces in some countries
- Cross-technology interop required on management layer when mixing access technologies like PON, DSL and EFM

Interoperability Scenarios

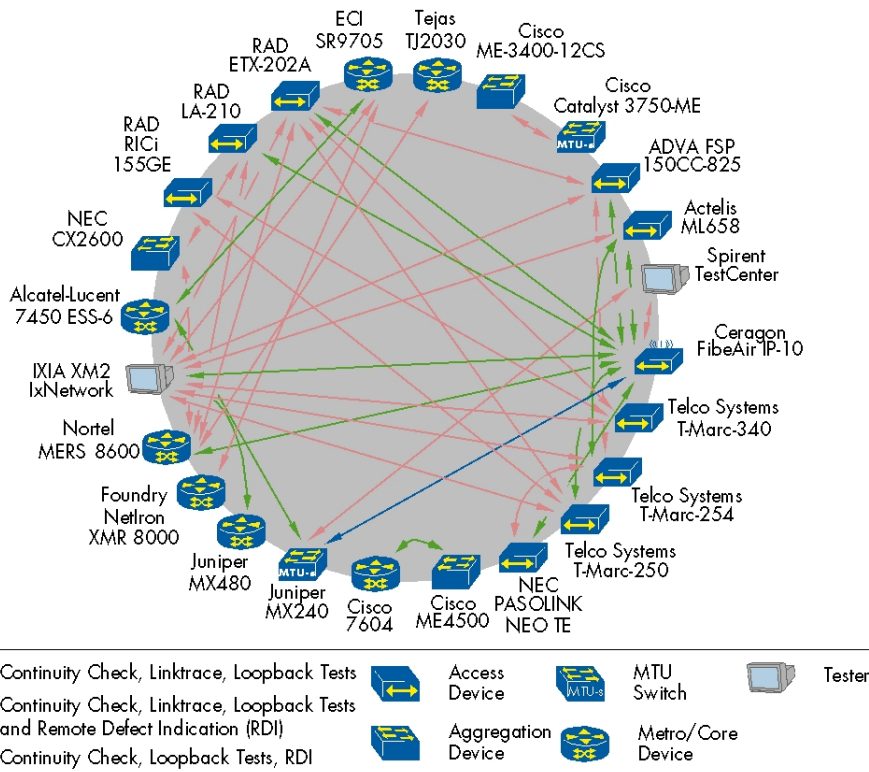


Access Interoperability Testing at EANTC

- MPLS and Ethernet World Congress, Feb 2009
- Carrier Ethernet World Congress, Sept 2008



Ethernet OAM Interoperability



- Focused on business services (1:1 fiber, FTTB/FTTH) so far
- 12 router/switch plus 2 analyzer vendors participated
- Outstanding level of support
- Implementations fully interoperable for the three basic services (CC, LT, LB)
- Added Remote Defect Indication tests

Mobile Backhaul Interoperability Requirements

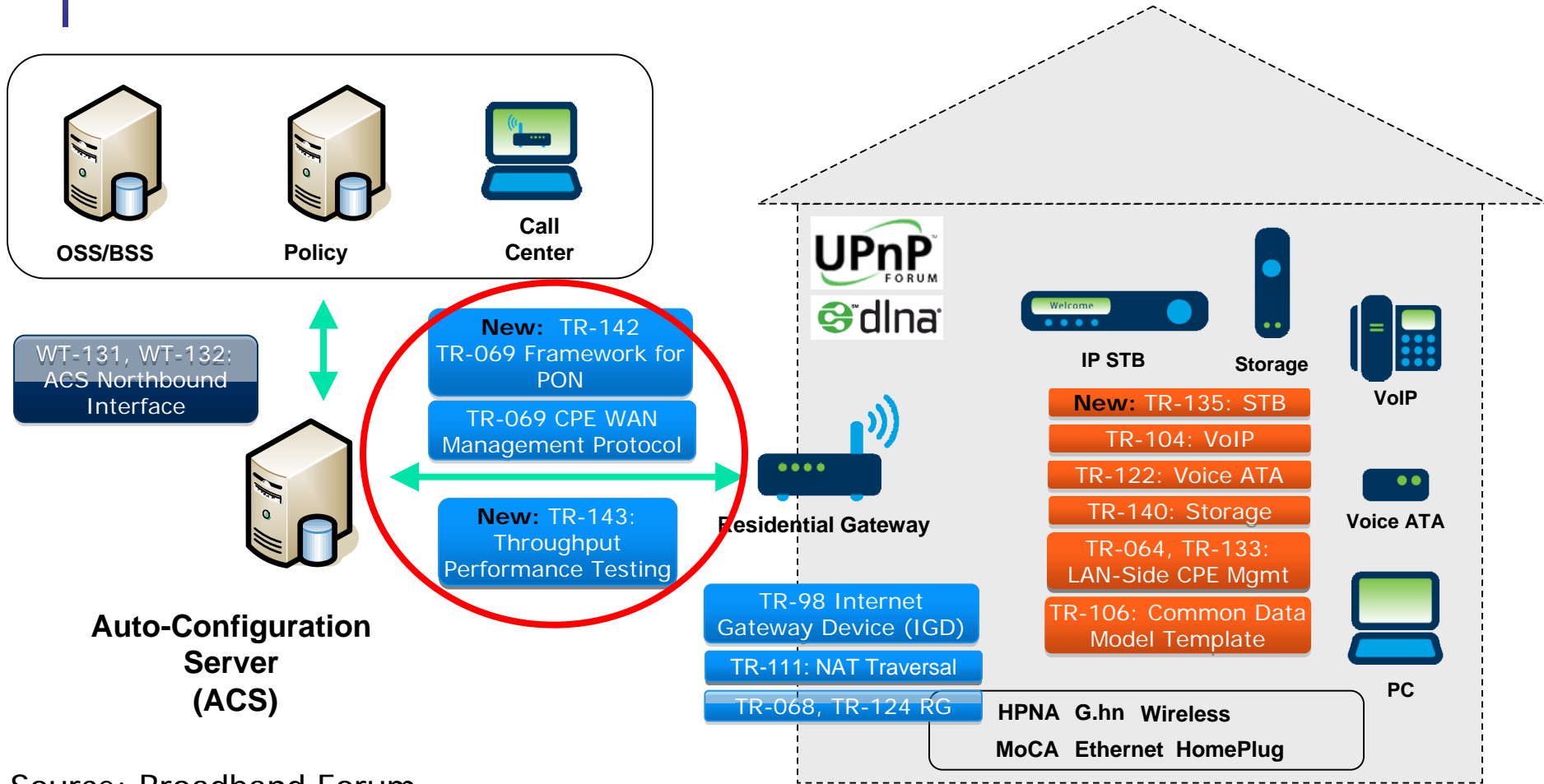
Additional network services required:

- Clock synchronization – rapidly growing number of implementations for IEEE 1588v2
- TDM (E1) over packet – established market
- ATM over packet – established, small market with some functional interoperability issues
- Synchronous Ethernet – rare, early implementations
- ... and, of course, Quality of Service and high availability functions

Future PON Multi-vendor Interoperability Test Areas

- Multicast, including service separation
- Downstream encryption
- G.984.4 Management entities
- Dynamic Bandwidth allocation (DBA)
- OAM across PON, DSL and EFM technologies

Broadband Forum BroadbandHome™ Remote Mgmt Testing



Source: Broadband Forum

Summary

- Increasingly complex FTTx design frameworks
 - Multiple services: Triple Play, Business, Mobile Backhaul
 - Multiple access technologies
 - Automated management and control
- Physical layer testing is mature
- Lots of things to do for network, transport, application testing of FTTx architectures

Thank you for your interest!

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