ONF Meetup
Altice Labs update

May 2022

alticelabs.com
SUMMARY

• About Altice Labs
• ONF in Altice Labs Solutions
• Lessons learned, contributions and future work
ABOUT US
WHO WE ARE

Altice Labs, an Altice Group company, lives by innovation and works every day for the development of new solutions, technologies and trends for the telecommunications area.

Knowledge is the raw material that Altice Labs transforms into advanced solutions with an innovation approach supported on an ecosystem built around R&D entities, startups and industrial partners.
OUR HISTORY

50s/60s
- GECA (1950)
- CET (1972)
- Analogue Switching
  - Portugal becomes the first country with a fully automated telephone network
  - GECA: Grupo de Estudos de Comutação Automática

70s/80s
- Passive Optical Network
  - Full digitalization of the transmission network (MIC30)
  - Digital Local Exchange (ELD)

90s
- PT Inovação (1999)
- Broadband
  - First broadband ATM European connection (1993)
- MIMO
  - First cellular prepaid service in the world (1995)

2000s
- i9 Mobile Portal
  - First commercial live TV service over GPRS (2003)
- picoDSLAM
  - Portugal becomes the 4th country in the world with full Broadband coverage (2005)
- MEO
  - Innovative interactive TV service (2008)

2010s
- GPON
  - First interoperable ONU (2010)
- MEO GO!
  - My TV on the go (2010)
- TMF Frameworx12
  - NOSSIS certification
  - First OSS suite certified by TMF Frameworx12 (2012)
- Smart2M
  - M2M managed connectivity & IoT (2013)
- NG-PON2
  - World first live symmetric 10 Gbps (2015, BOSTON)
- FiberGateway
  - First GPON Gateway Wi-Fi 5 x4 (2017)
- BotSchool
  - Virtual Assistant Platform (2019)
- FiberGateway
  - First GPON Gateway Wi-Fi 6 (2019)

2020s
- Smart Mesh Wi-Fi 6
  - Multi-point access Wi-Fi extender
- Beyond 5G
  - Innovative technologies research
- Dual Multitechnology SFP
  - GPON / XGS-PON / 25G PON (2021)

GECA: Grupo de Estudos de Comutação Automática / CET: Centro de Estudos de Telecomunicações / PT Inovação: Portugal Telecom Inovação
We continuously engage in collaborative Research, Development and Innovation projects as part of our sustained strategy for technological leadership.
300.000.000 people communicate everyday through technology developed by Altice Labs.
WHAT WE DO
## Digital Business & Operations

Catalog Driven solutions for agile Design, Subscription, Provisioning, Charging and Assurance of multi technology services in the 5G & Digital Services era.

## Advanced Connectivity

Altice Labs helps you create customized network solutions, provides the equipment and assists you with monitoring, troubleshooting, configuration and optimization.

## Industry Digitalization

Aiming to help companies effectively accelerate digital transformation, Altice Labs' industry digitization solutions combine advanced multi-access communications technology with integrated 5G control, with data analytics and intelligent applications on the edge and in the cloud, making the digital an enabler for business.

## Smart Life

Focused on smart environments and interactions, smart life solutions designed by Altice Labs bring together smart connectivity with intelligent integrated personal and home devices, making digital an enabler for enhanced wellbeing and life experience.

Altice Labs solutions are enabling the telecom industry, service providers and other sectors to better do business, increase efficiency, improve the user experience and capture new opportunities.
Altice Labs helps you create customized network solutions, provides the equipment, and assists you with monitoring, troubleshooting, configuration, and optimization.

**PRODUCTS**

**Connectivity**

**Optical Distribution Network**
- Enable efficient and effective management of your network resources.

**Central Office**
- High level of flexibility, Multi PON Modules which fully supports next generation 10G PON architectures.

**Customer Premises Equipments**
- Increase flexibility & unification in your product development cycle, while decreasing Time-to-Market.

**Network Management System**
- End-to-end solution for multiservice and multi-technology.

**Smart Mesh Wi-Fi**
- A seamless and reliable Wi-Fi system in all home scenarios.
ONF in Altice Labs Solutions
Our objectives for the Access Network

- A more scalable and more flexible solution
- Standard Interfaces and APIs
- Evolutionary and non-disruptive solution
Collaboration with Open Source Projects and Standard Bodies

- Active member
- Contributions to the Cloud CO specifications
- One of the main contributors of the Open Source OB-BAA project
- Participation in several initiatives of the BBF including certification programs and demonstrations
- Participation in the BBWF Cloud CO demonstration since 2019

- Not a member, but aware of the ONF work since CORD
- Some contributions to ONOS and Stratum made in the context of our innovation radar/prototyping
- Participation in the BBF/ONF collaboration initiatives
Altice Labs Solution

Digital Business & Operations/Legacy OSS

- Web GUI
- Open APIs
- Security
- Network sharing
- Orchestration
- Inventory
- Telemetry
- Alarms
- Automation
- VNFs

- OB-BAA
- VOLTHA
- ONOS

- Whitebox OLT
- Leaf-spine Agg.

- NETCONF/TR-451/WT-477
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- Multiple deployment options
- Evolutionary non-disruptive
- Possibility to extend Access Nodes with VNF support (eg. vOMCI)
**Versatile OLT Product Portfolio | OLT2T0-E**

16x PON (SFP+) ports
- GPON + XG(S)-PON Multi-PON-Module (MPM) with SR up to 1:128

Uplink ports:
- 1/10/25GbE(SFP+): 4
- 40G/100GbE (QSFP28): 2/4

Alarm - I/O ports: 4 inputs, 2 outputs

Traffic:
- Services: 1:1 and N:1 VLAN
- Non blocking between PON ports and uplink ports
- Jumbo frames: 9600B @ XGS-PON, 2000B @GPON
- H-QoS (3 levels)
- OAM: Service Connectivity Verification (Y.1731)

Synchronization:
- Sync-E on uplink ports and BITS port
- IEEE 1588v2/PTP: optional

**Power & Environment**
- Redundant DC power feed: nominal -48VDC
- Temperature Range: -40 up to +65°C

**Software**
- Pre-loaded with Altice Labs NOS (NETCONF/YANG)
- Option to work as Whitebox (ONIE and ONL support)

**Increased Capacity**
- Use of novel dual SFPs for PON
- The first SFP GPON and SFP+ XGS-PON in the market with double density
- Double the PON port capacity from 16 to 32 ports
- Options for GPON and XGSPON technologies

16 PON ports pizza box
- 16 MPM PON ports per OLT2T0E
- 2048 Customers @ SR 1:128
Lessons learned, contributions and future work
Lessons learned, contributions and future work

- Open-source projects like ONF’s are important innovation drivers
- Other areas of interest in the ONF scope
  - Also exploring BNG functions and SD-Fabric
- Concerns
  - Uncertainty about the support for Broadcom chipsets in Stratum
  - Some uncertainty on the roadmap of the ONF projects
    - uONOS
    - PINS
  - Difficulty to access project status, roadmap and documentation for non-members
- Altice Labs is willing to collaborate with the ONF, either directly or via its role on the BBF
- Plan to demonstrate the OLT2T0-E whitebox integration in VOLTHA in the BBWF 2022 Cloud CO demo