ONF Meetup
Altice Labs update

May 2022

altice labs

alticelabs.com

2022

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)

Automatic switching
Portugal becomes the first country with a fully automated telephone network

- Analogue Switching

70s/80s — CET (1972)

Aveiro University
1973

Digital transmission
Full digitalization of the transmission network (MIC30)

Digital switching
Digital Local Exchange (ELD)

- Electronics
- Digital Transmission & Switching
- Network Management Systems

90s — PT Inovação (1999)

Passive Optical Network
in Aveiro (FIRST) (1991)

Broadband
First Broadband ATM european connection (1993)

MIMO
First cellular prepaid service in the world (1995)

- International R&D collaboration
- Broadband Transmission
- Intelligent Networks
- Television (IPTV)

2000s

i9 Mobile Portal
First commercial live TV service over GPRS (2003)

EMILO
ATM over SDH for 3G Mobile Backhaul (2004)

picoDSLAM
Portugal becomes the 4th country in the world with full Broadband coverage (2005)

MEO
Innovative interactive TV service (2008)

- Internationalization
- Mobile Networks
- Multimedia & Television

2010s — Altice Labs (2016)

GPON
First interoperable ONT (2010)

MEO GO!
My TV on the go (2010)

TMF Framewox12 NOSSIS certification
First OSS suite certified by TMF Frameworx12 (2012)

Smart2M
M2M managed connectivity & IoT (2013)

NG-PON2
World first live symmetric 10 Gb/s (2015, BOSTON)

FiberGateway
First GPON Gateway Wi-Fi 5 4x4 (2017)

BotSchool
Virtual Assistant Platform (2019)

FiberGateway
First GPON Gateway Wi-Fi 6 (2019)

- Optical access
- Mobility
- Digitalization/Virtualization
- Personalization/Contextualization
- M2M & IoT

2020s

Smart Mesh Wi-Fi 6
Multiple point access Wi-Fi extender

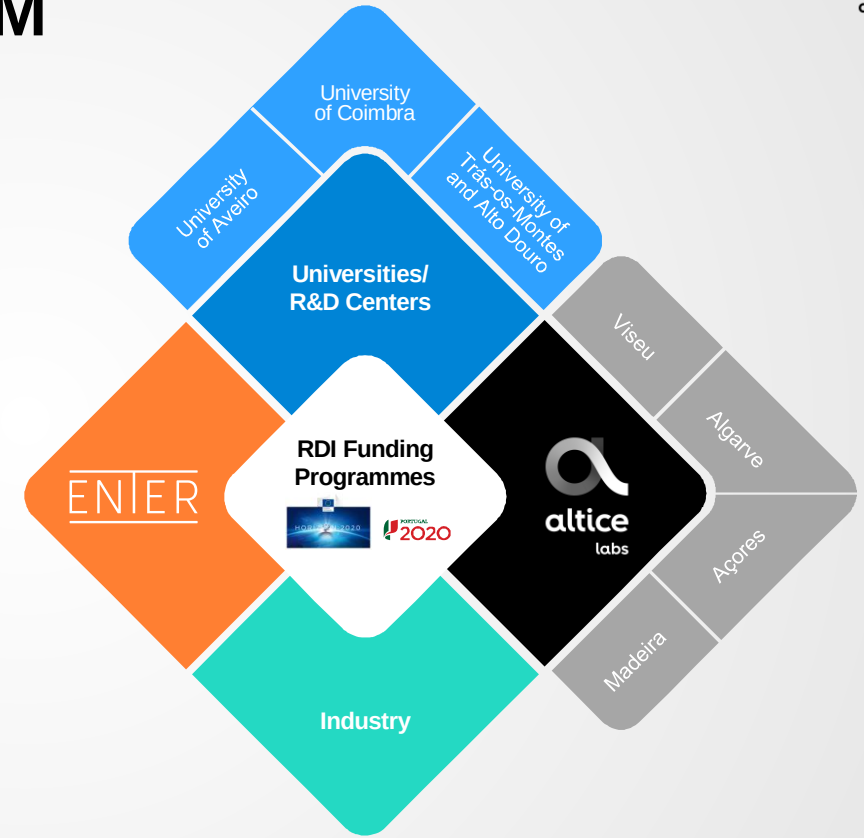
Beyond 5G
Innovative technologies research

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

INNOVATION ECOSYSTEM

We continuously engage in collaborative Research, Development and Innovation projects as part of our sustained strategy for technological leadership.



MARKET PRESENCE

300.000.000

people communicate everyday through technology developed by Altice Labs.


WHAT WE DO

SOLUTIONS

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.

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.

PRODUCTS
Connectivity

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

Optical Distribution Network

- Enable efficient and effective management of your network resources.

Network Management System

- End-to-end solution for multiservice and multi-technology.

Central Office

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

Smart Mesh Wi-Fi

- A seamless and reliable Wi-Fi system in all home scenarios.

Customer Premises Equipments

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

ONF in Altice Labs Solutions

Our objectives for the Access Network

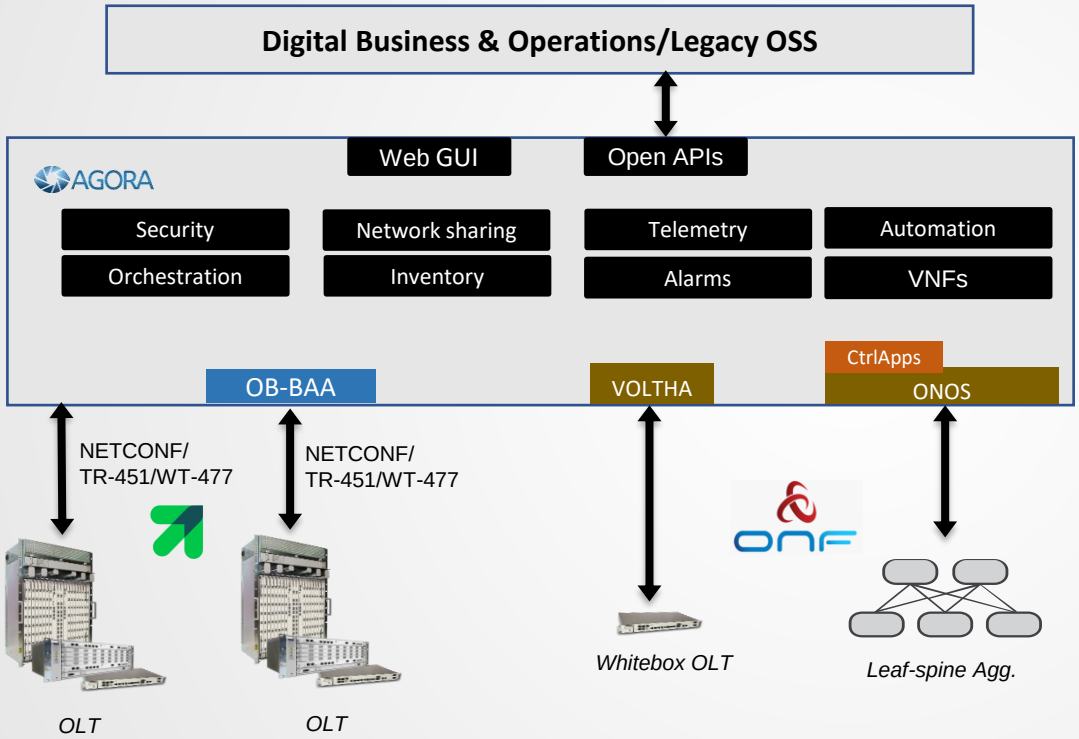
- A more scalable and more flexible solution
- Standard Interfaces and APIs
- Evolutionary and non-disruptive solution

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

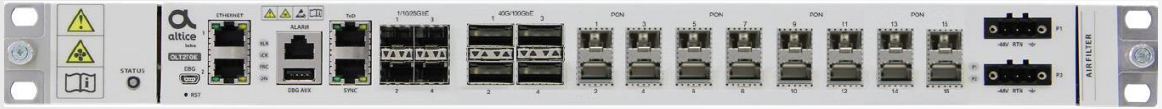
- Not a member, but aware of the ONF work since CORD
- Some contributions to ONOS and Stratum made in the context of our innovation radar/prototyping
- Participation in the BBF/ONF collaboration initiatives

Altice Labs Solution



- Multiple deployment options
- Evolutionary non-disruptive
- Possibility to extend Access Nodes with VNF support (eg. vOMCI)

Versatile OLT Product Portfolio | OLT2T0-E



16 PON ports pizza box
- 16 MPM PON ports per OLT2T0E
- 2048 Customers @ SR 1:128

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

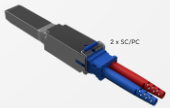
Traffic:
- Services: 1:1 and N:1 VLAN
- Non blocking between PON ports and uplink ports
- Jumbo frames: 9600B @ XGS-PON, 2000B @GPON
- H-QoS (3 levels)
- OAM: Service Connectivity Verification (Y.1731)

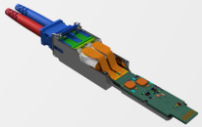
Synchronization:
- Sync-E on uplink ports and BITS port
- IEEE 1588v2/PTP: optional

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

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





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

André Brízido
andre-d-brizido@alticelabs.com

Rua Eng. José Ferreira Pinto Basto,
3810 - 106 Aveiro Portugal

+351 234 403 200

alticelabs.com