FR news

HEXA Play Solutions
Hospitality Solutions

FRACARRO

fracarro.com

HEXA Play Solutions

Fracarro presents the next generation **GPON** (Gigabit Passive Optical Network) based **FTTH** (Fibre To The Home) network, ready to distribute data, video and voice over a single optical fibre. Multiple services and contents such as **Internet connection, VoIP, SAT-TV, UHDTV, DTT, IPTV, Radio and Data over fibre etc.** can be delivered to the end user. Optical Fibre based architecture is the ideal solution to future proof Multi Service Infrastructure. It is scalable and ensures a quality service.

Fracarro GPON OLT is modular and can manage up to 4,096 users.

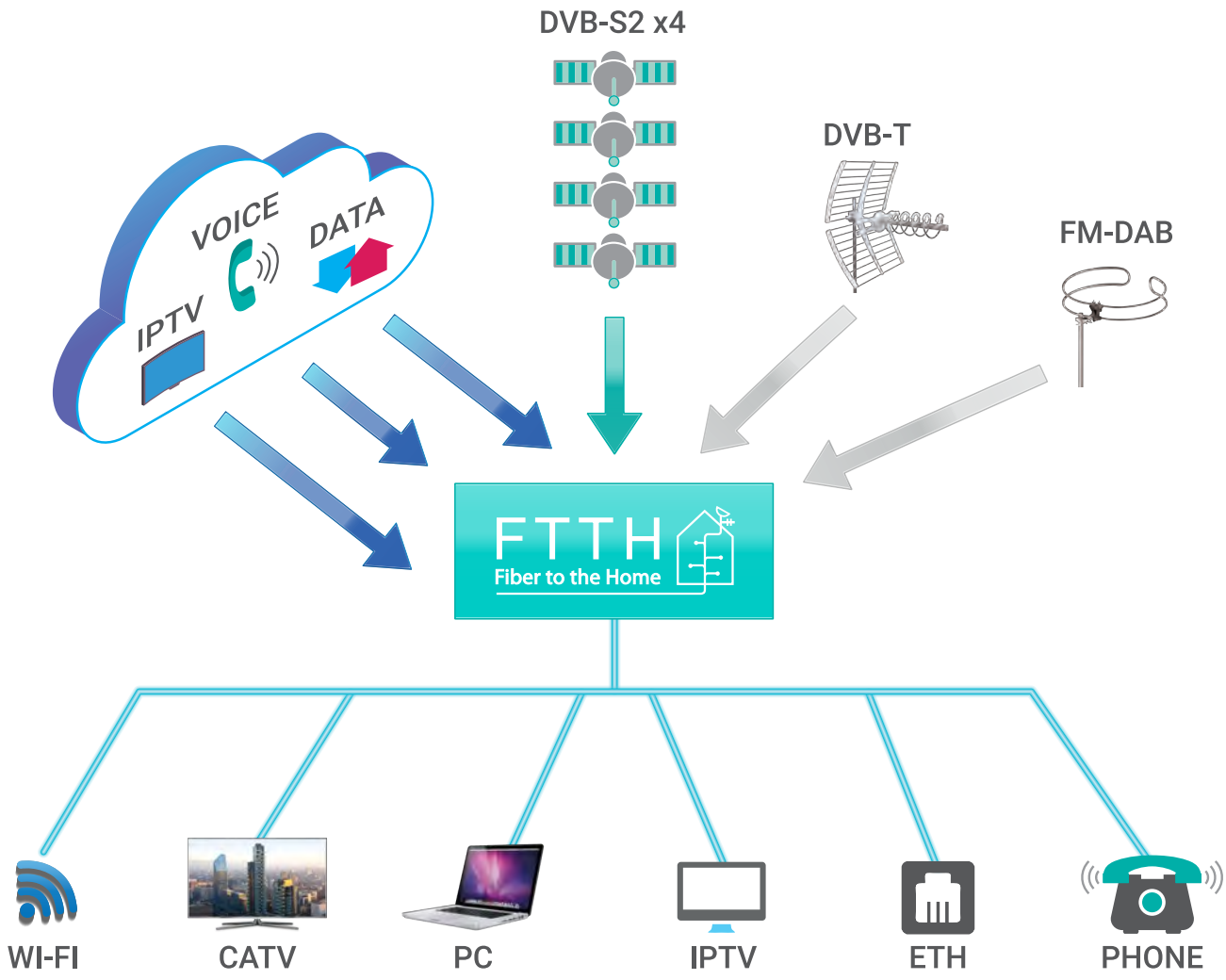
Fracarro Optical Transmitters and Receivers are one of the best quality product ranges in the market and are a result of more than 20 years of continuous development. We can offer multiple versatile solutions, working in both the second and third optical transmission windows.

Fracarro Headends are suitable for local generation and/or re-generation of **SMATV/CATV/Radio** signals that are injected in the GPON through **WDM** (Wavelength Division Multiplexing) technology. Additional services are provided from different sources based on the users requirements.

Multiple configurations are available and Fracarro's experience and **expertise** makes the difference at the network design phase.

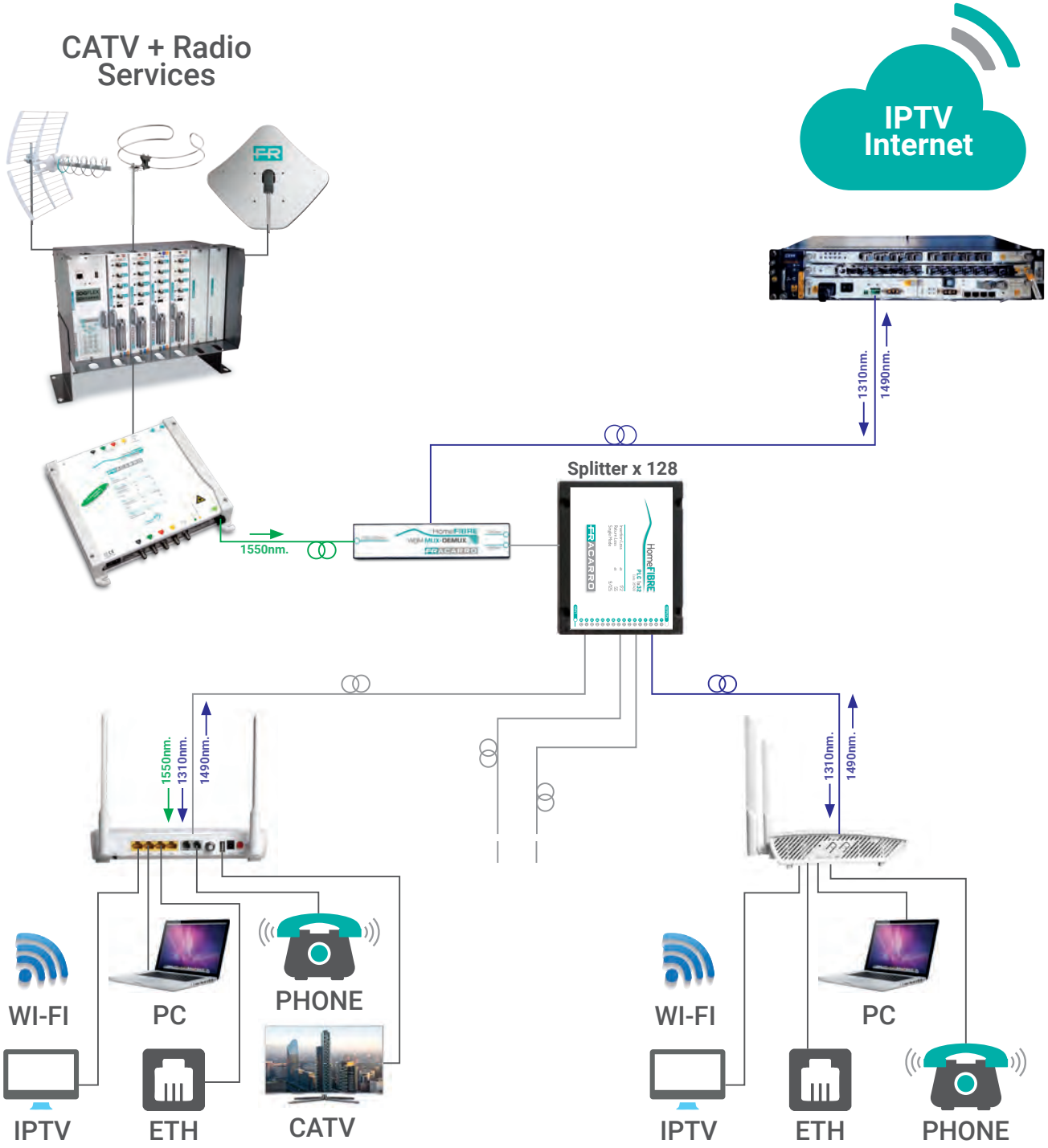
Fracarro's consultancy adds value and is something we have been proud to offer for decades.

FTTH concept



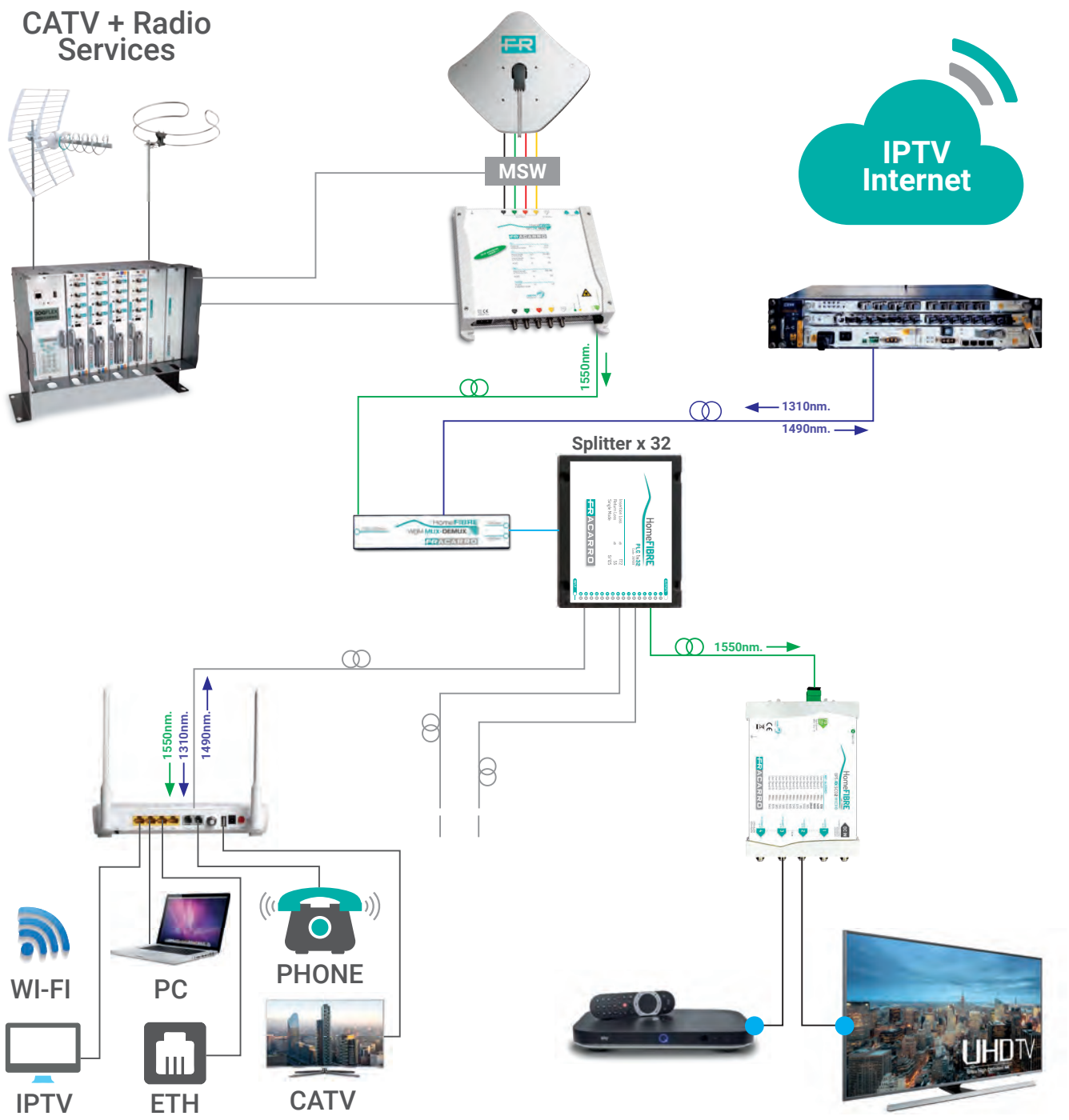
GPON (Internet+DATA+IPTV+VoIP) **+ CATV**

This GPON configuration shows **IP-based services** and **CATV programs** coming from the Headend. Two optical signals, one from an OLT and the other from an optical transmitter, are combined using a WDM2 (2-Way Wavelength Division Multiplex) on to a single fibre and then divided by an optical splitter up to 128 times. This enables all injected services and CATV programs to reach the ONT device on the premises where they are converted back in to their original form. All IP-based services are available **on the Ethernet ports, Phone output and WiFi** and all **CATV** programs on the **coaxial output**, ready to be connected **to the TV**.



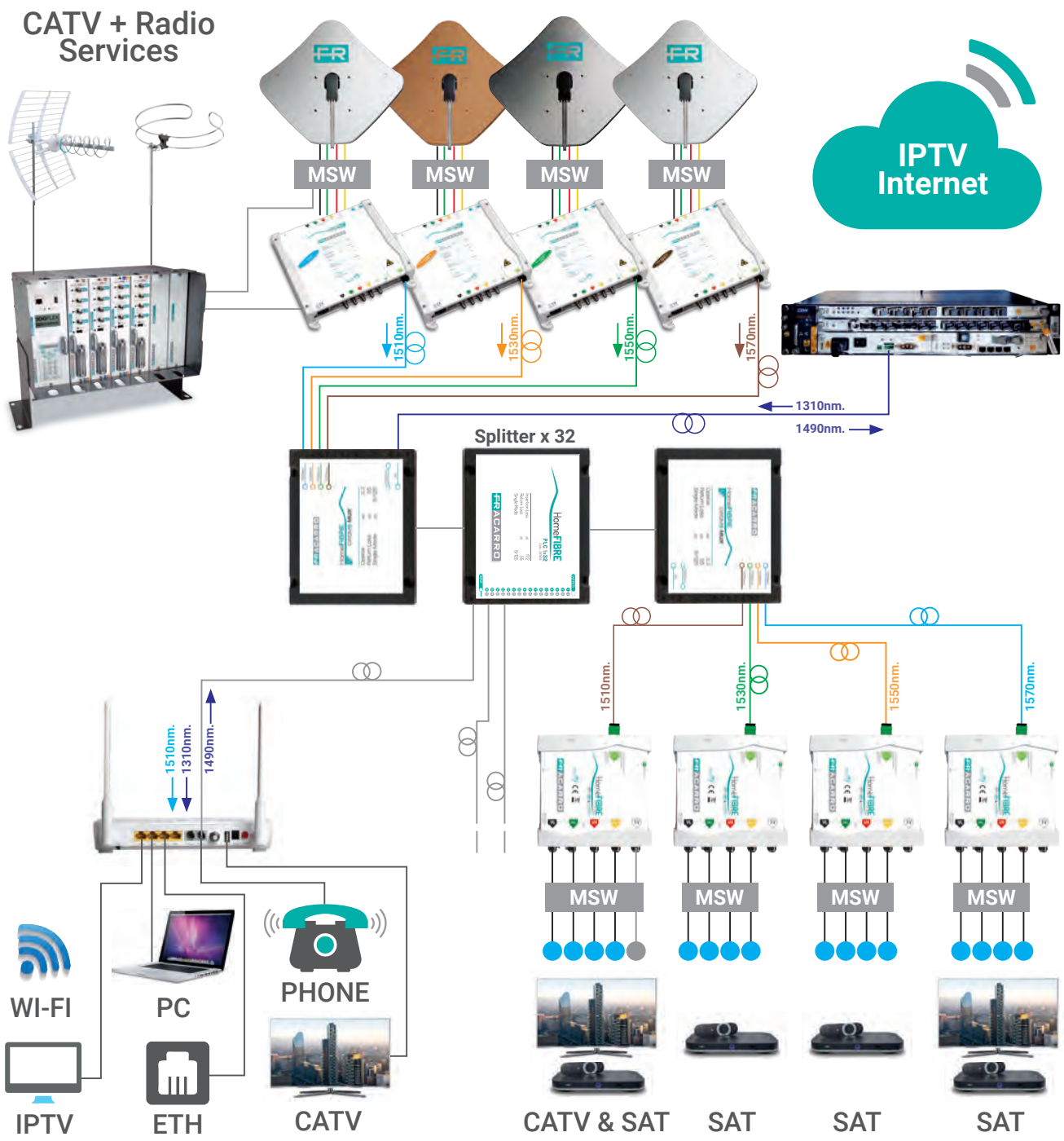
GPON (Internet+DATA+IPTV+VoIP) **+ CATV + Satellite**

Beyond **IP-based services** and **CATV programs** (DVB-C/T) the following GPON configuration includes 4 **satellite** polarities (DVB-S/S2). Two optical signals, one from an OLT and the other from an optical transmitter, are combined using a WDM2 (2-Way Wavelength Division Multiplex) on to a single fibre and then divided by an optical splitter up to 32 times. This enables all injected services and CATV/Satellite programs to reach the ONT device on the premises where they are converted back in to their original form. All IP-based services are available **on the Ethernet ports, Phone output and WiFi** and all CATV/Satellite programs on the **coaxial output**, ready to be connected **to the TV** or **on satellite set top box**.



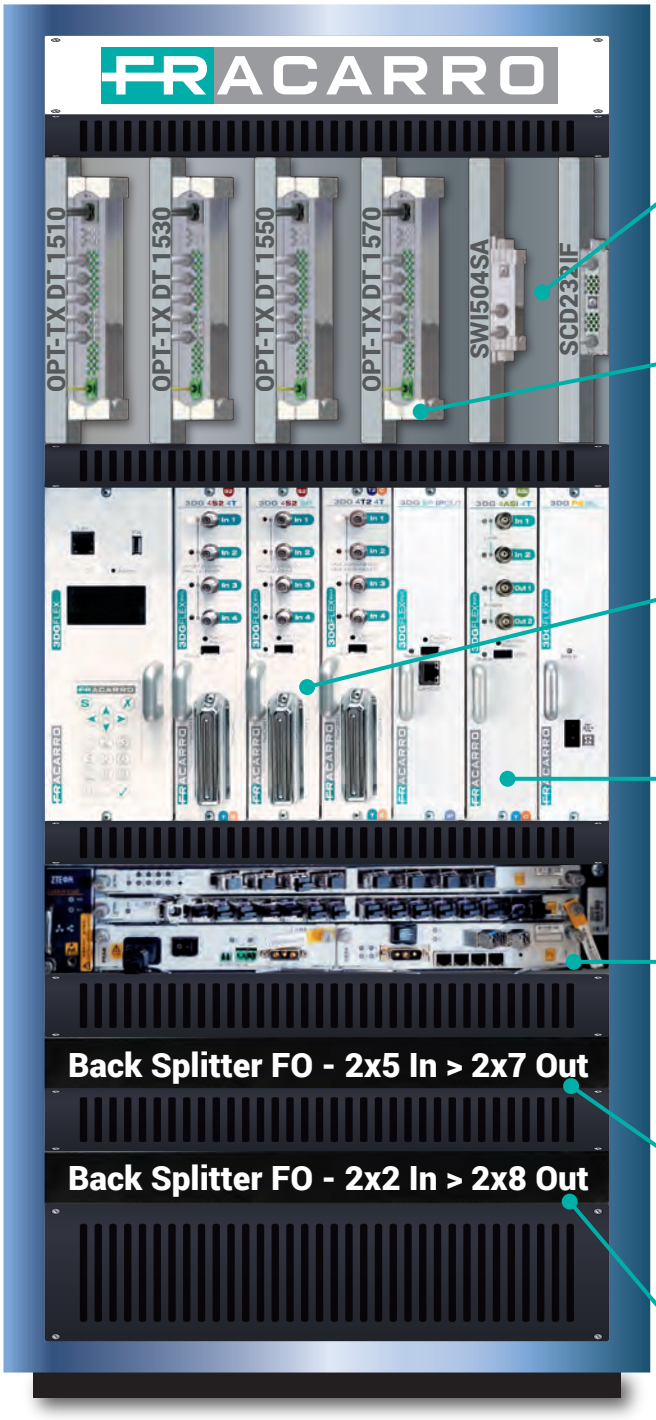
GPON (Internet+DATA+IPTV+VoIP) **+ CATV + MultiSatellite**

The following diagram shows a combination of **IP-based services, CATV programs** (DVB-C/T) and 16 **satellite** polarities (DVB-S/S2). Five optical signals, one from an OLT and four from optical transmitters, are combined using a CWDM5 (5-Way Coarse Wavelength Division Multiplex) on to a single fibre and then divided by an optical splitter up to 32 times. This enables all injected services and CATV/Satellite programs to reach the ONT device on the premises where they are converted back in to their original form. All IP-based services are available **on the Ethernet ports, Phone output and WiFi** and all CATV/Satellite programs on the **coaxial outputs**, ready to be connected **to the TV** or **multi-dwelling system**.



LIVE GPON system:

Shown In the 19" rack cabinet is a live **Fracarro GPON system** as described in the configuration on the previous page. The **OLT** and the **Headend** are injecting source content into the FTTH GPON Network.
The **OLT** can manage up to 4,096 users simultaneously with IP-based services (Internet, Telephony, Data, IPTV and CCTV).
4 OPT-TX Optical Transmitters are supplied by 16 satellite polarities and selected CATV programs are coming from **3DGFlex Compact Headend** (TV, Radio and other sources).
After multiplexing and splitting, multi-wavelength optical signals are distributed to multiple end users where the reverse process is carried out.
Details of the cabinet configuration are shown on the right side of the picture.



Multiswitch
Satellite and TV/radio signal adjustment, amplification, equalisation.

Optical TX SAT and TV
16 satellite polarities, digital terrestrial television, analogue and digital radio.

Headend
DVB-S2, DVB-T2 to DVB-T/C transmodulation over the CATV network with FTA or ENC services; DRM (Digital Right Management) embedded.

Streamer IPTV
Optional: IPTV streamed multicast services and VOD (Video On Demand) 1Gbit/sec each module.

Optical TV, DATA and Voice
GPON OLT (Optical Line Termination unit)
Gigabit transmission up to 4,096 users

Optical Multiplexer
CWDM (Coarse Wavelength Division Multiplexing) all sources combined into one single fibre

PMP - Point Multipoint
Optical P2MP (Point to Multipoint)
PON network architecture

Dwelling box:

At the end users premises a single FTTH GPON fibre goes into a **Breakout Box** where all services, once converted back, are "ready to use". In the picture below are shown **the fibre termination unit, ONT, optical receivers** and a **multiswitch**.

Based on the customer requirements, using the same GPON infrastructure, the following configurations can be supplied:

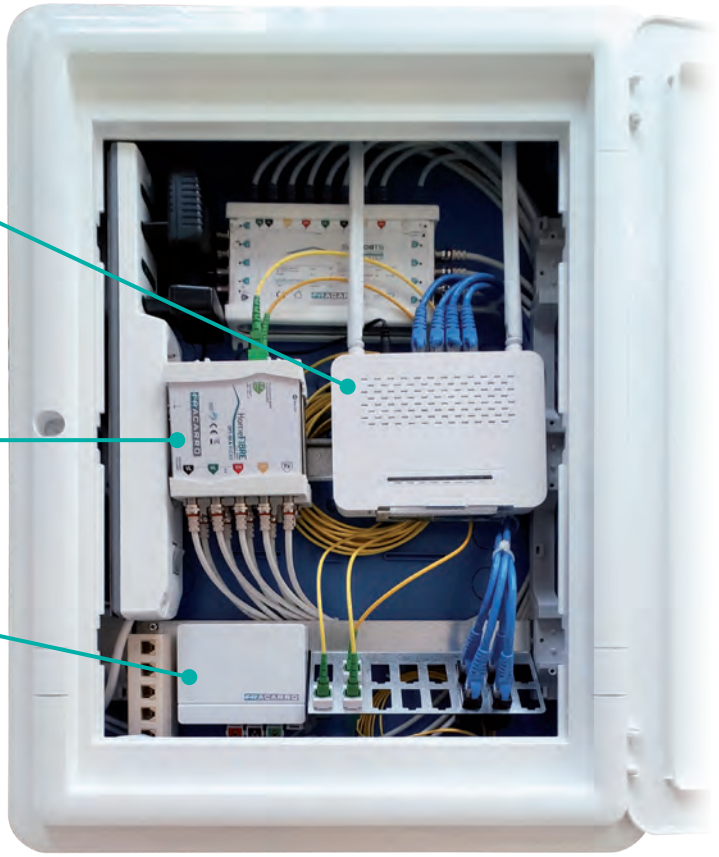
- IP-based services and TV/SAT full TV solution (CATV + SAT or MULTISAT)
- IP-based services and TV solution (CATV only)
- IP-based services only (DATA + VOICE)
- TV services only (TV or CATV + SAT)

Details of the Breakout Box configuration are shown on the left side of the picture.

ONT optical network terminal
CATV, DATA, WIFI, IPTV, PHONE, RADIO, CCTV.

Optical Receivers + Multiswitches:
SAT+CATV+RADIO

Single dwelling optical unit
User fiber termination Unit



Described GPON FttH solution allow high integration, flexible adaptation as well as the flexible enlarging capacity. Furthermore reliability, web-management and tools for the QoS management are no less important.
All these features and their customisation are essential for the quality and even for price optimisation.

Hospitality solutions

D-MATRIX 4S EVO compact headend

Compact headend to distribute up to **20-25** digital satellite DVB-S/S2 channels (FTA or ENC) coming from 4 different satellite transponders on 4 DVB-T or DVB-C output muxes.

Main features

- **4xDVB-S2 to 4xDVB-T/C** satellite compact headend
- 2xSlot C.I. **FlexCAM**
- **WEB** interface based
- Autoremapping feature and **Overflow protection**
- **USB** external **.TS video/audio** files playback

3DGFLEX EVO modular headend

Modular headend to distribute up to **60-70** digital satellite DVB-S/S2 and terrestrial DVB-T/T2 channels (FTA or ENC) on DVB-T or DVB-C output muxes, coming from different satellite transponders and terrestrial muxes.

Main features

- **4 digital outputs**, 2 Common Interfaces (**FlexCAM**).
- Back-panel with up to 1Gbit/s bi-directional very high output bitrate able to share the contents from all the modules (**Smart&Pool**)
- **USB** port for Audio/Video files playback function (**.TS format**) or for upload/download the configuration.
- MUX "ad-hoc" (Remux, LCN, ONID and PIDs)

Channels distribution example

Channels	Language	D-MATRIX 4S EVO	3DGFLEX EVO
euronews	English	•	•
Bloomberg	English		•
CNN	English		•
RTL	German	•	•
KiKA	German	•	•
ZDF	German	•	•
n-tv	German	•	
3sat	German	•	•
VOX	German	•	•
RTL II	German	•	•
EUROSPORT 1	German		•
SAT.1	German		•
7	German		•
9	German		•
SAT.1 GOLD	German		•
ZDFmax	German		•
N24 DOKU	German		•
DMAX AUSTRIA	German		•
DW	German		•
zdf info	German	•	
zdf_neo	German	•	
RTL plus	German	•	
TOGGO plus	German	•	
SUPER RTL	German	•	
NITRO	German	•	
FRANCE 24	French	•	•
TV5MONDE	French	•	•
CGTN FRANÇAIS	French	•	
TRT WORLD	French	•	
CGTN DOCUMENTARY	French	•	•
tve	Spanish		•
CNBC	Chinese		•
1	Russian	•	
RT	Russian	•	•
RT	Russian	•	
AL JAZEERA	Arabia		•
+35 TV channels			•

Fracarro Radioindustrie SRL via Cazzaro, 3 31033 Castelfranco Veneto TV ITALY Tel. +39 0423 7361 Fax +39 0423 736220 info@fracarro.com