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Technology Shaping the Future

Ultra Broadband FWA for Rural Areas using the 28GHz band

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Padelis Trakas, Sr. Product Manager

A Global Challenge

How to bring broadband to the last and most remote location?

Google Earth

Rural Landscape Challenges

Landscape

- Adverse terrain
- Scattered villages
- Clustered houses
- Hard or costly to reach

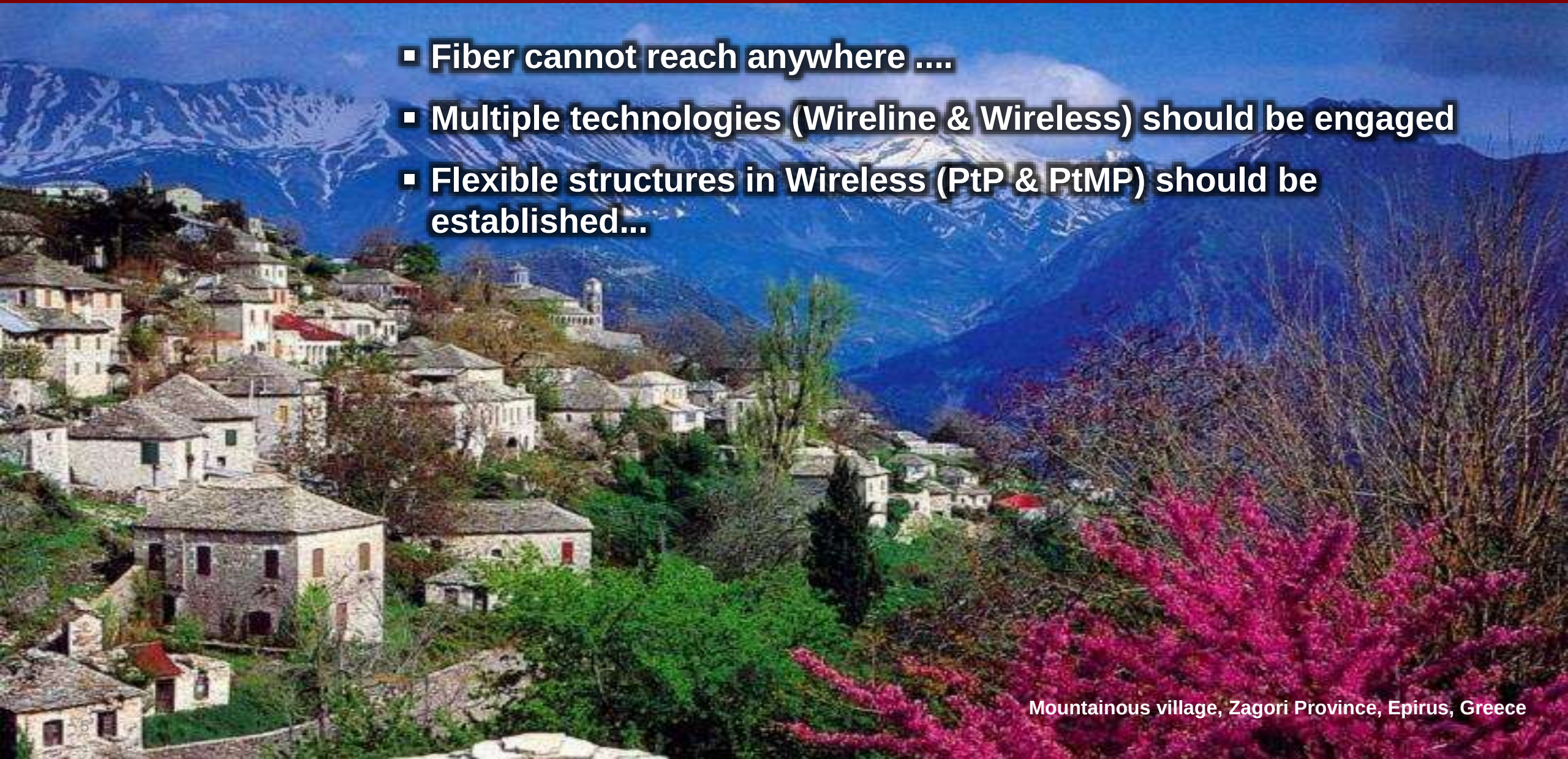
Challenges

- Limited infrastructure
- Low per capita income
- Digital poverty
- Obtain site permits
- Urgency to comply to national vision

How can Ultra Broadband Services reach here?

No Rural Technology Champion

- Fiber cannot reach anywhere ....
- Multiple technologies (Wireline & Wireless) should be engaged
- Flexible structures in Wireless (PtP & PtMP) should be established...



Mountainous village, Zagori Province, Epirus, Greece

Myriad Technologies – A Common Deficit!

Technologies were not designed on purpose for Rural Broadband.

5G Spectrum in Europe

Focus on mid-band (3.4-3.8 GHz) and 26 GHz (24.25-27.5 GHz) for 2018+

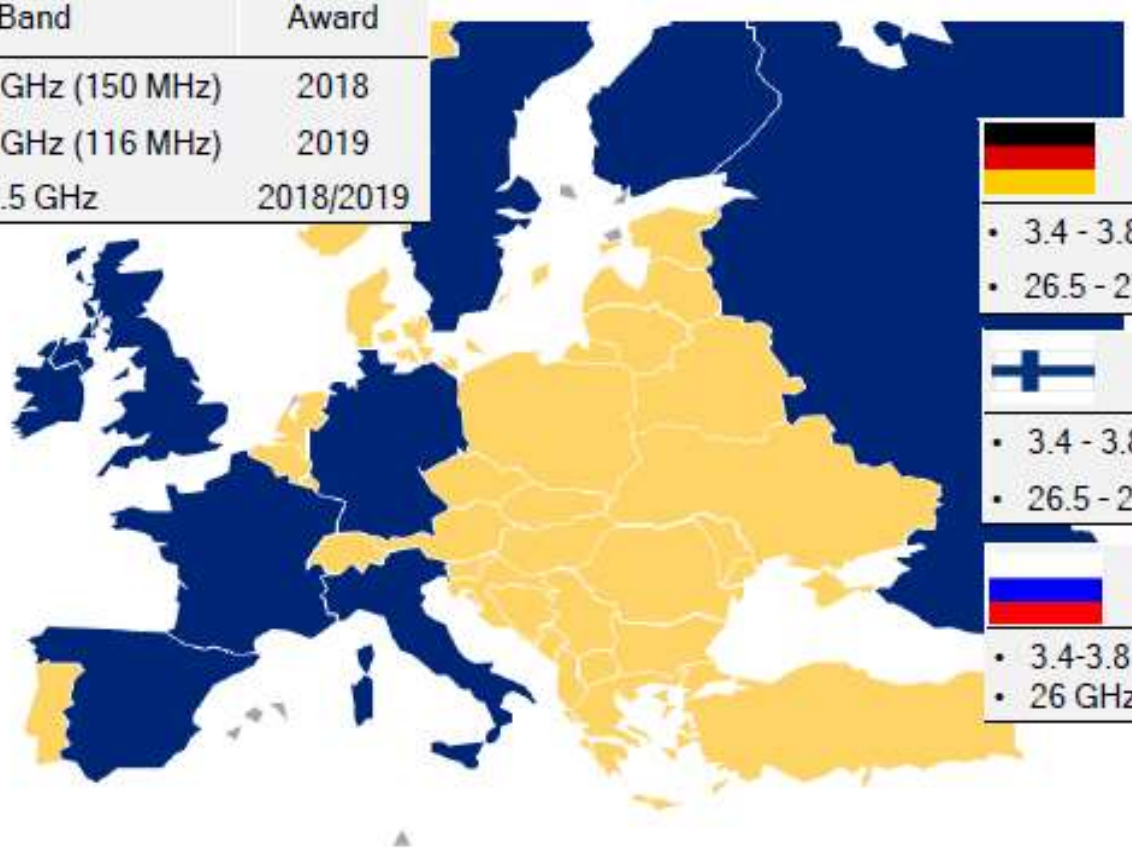
Band	Award
• 3.4 - 3.8 GHz (350 Mhz)	2017
• 26 GHz	2018

Band	Award
• 3.46 - 3.8 GHz	2018
• 26 GHz	2019

Band	Award
• 3.4-3.8 GHz	2019/2020
• 26.5 - 27.5 GHz	2019/2020

Band	Award
• 3.6 - 3.8 GHz	2018
• 26.5 - 27.5 GHz	2018

Band	Award
• 3.4 - 3.6 GHz (150 MHz)	2018
• 3.6 - 3.8 GHz (116 MHz)	2019
• 26.5 - 27.5 GHz	2018/2019



Band	Award
• 3.4 - 3.8 GHz	2018
• 26.5 - 27.5 GHz	2018?

Band	Award
• 3.4 - 3.8 GHz	2018
• 26.5 - 27.5 GHz	2020

	Award
• 3.4-3.8 GHz	2019/20*
• 26 GHz	2020+*

The Objectives for Rural Broadband

- Minimize Time to Market
- Expand to the furthest possible geographic coverage
- Have room for capacity growth

Only a purpose-built technology can be a good solution!

Our Rural Proposition for 5G Speeds… Now!

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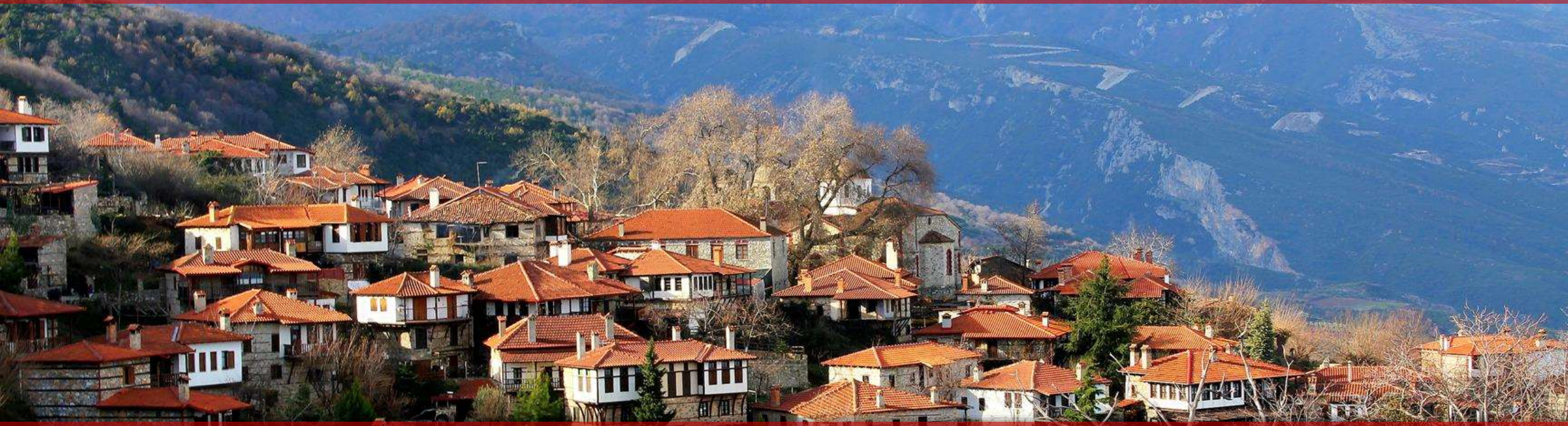


The Best Approach to Ultra Broadband Objectives

WiBAS connect

- 5G speeds (1Gbps/sector, 500Mbps/terminal)
- Fully Outdoor Compact Radio Connectivity
- Extended Coverage
- Excess Capacity
- Affordable User Equipment

Fixed Wireless Access
Toolkit @ 26/28GHz

WiBAS OSDR

Hub

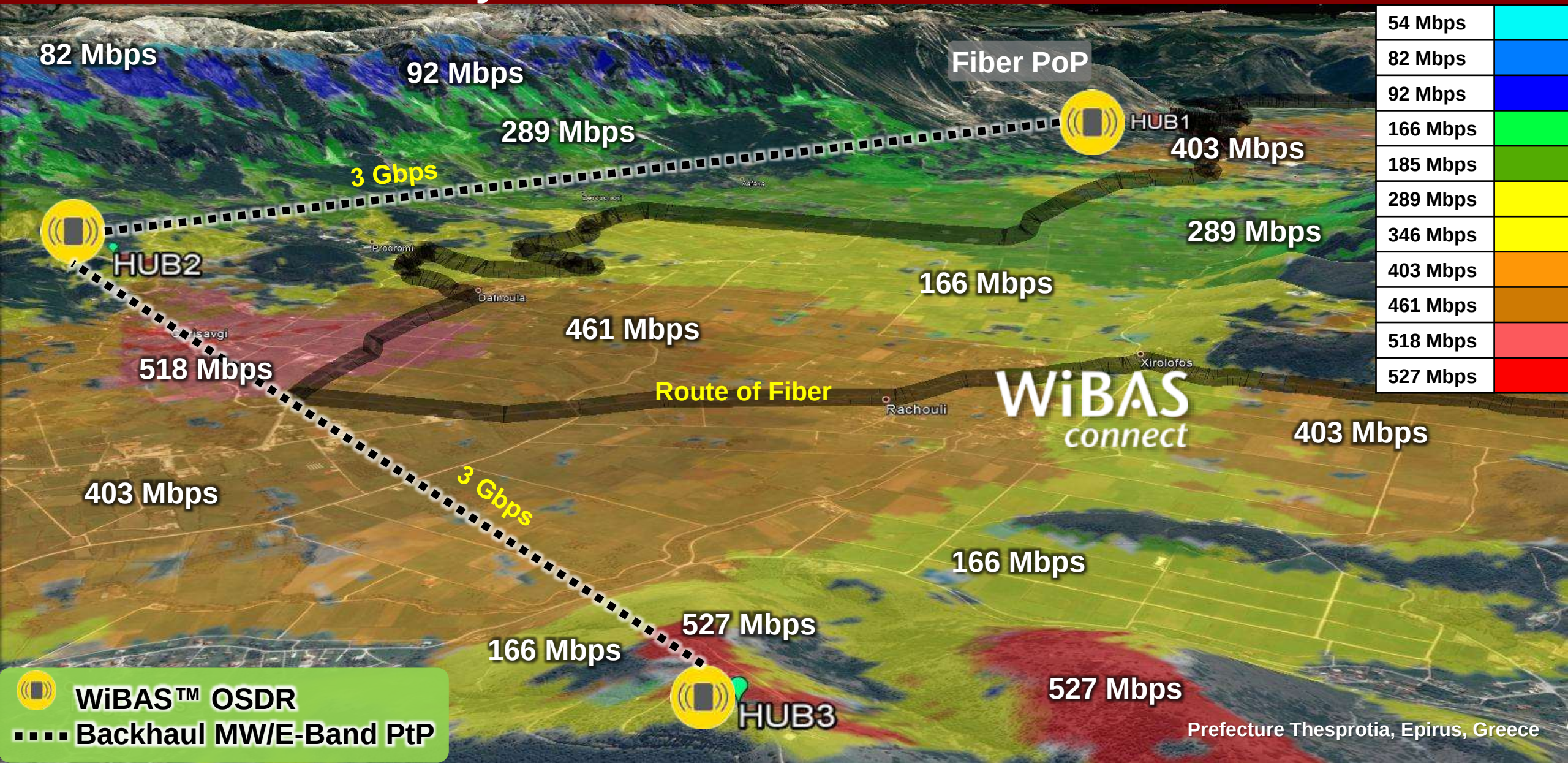
WiBAS micro-BS

Hub

WiBAS connect

CPE

Case Study
Network Connectivity with WiBAS-Connect



Relay capability & Small Cell coverage

STREETNODE

- Compact for Rural Deployment
- Flexible PtP/PtMP/Relay
- Architecture 26/28/32/42 GHz & 60 GHz
- Highly Automated (Alignment, ZTP)


eolo

The Rural Italy Case

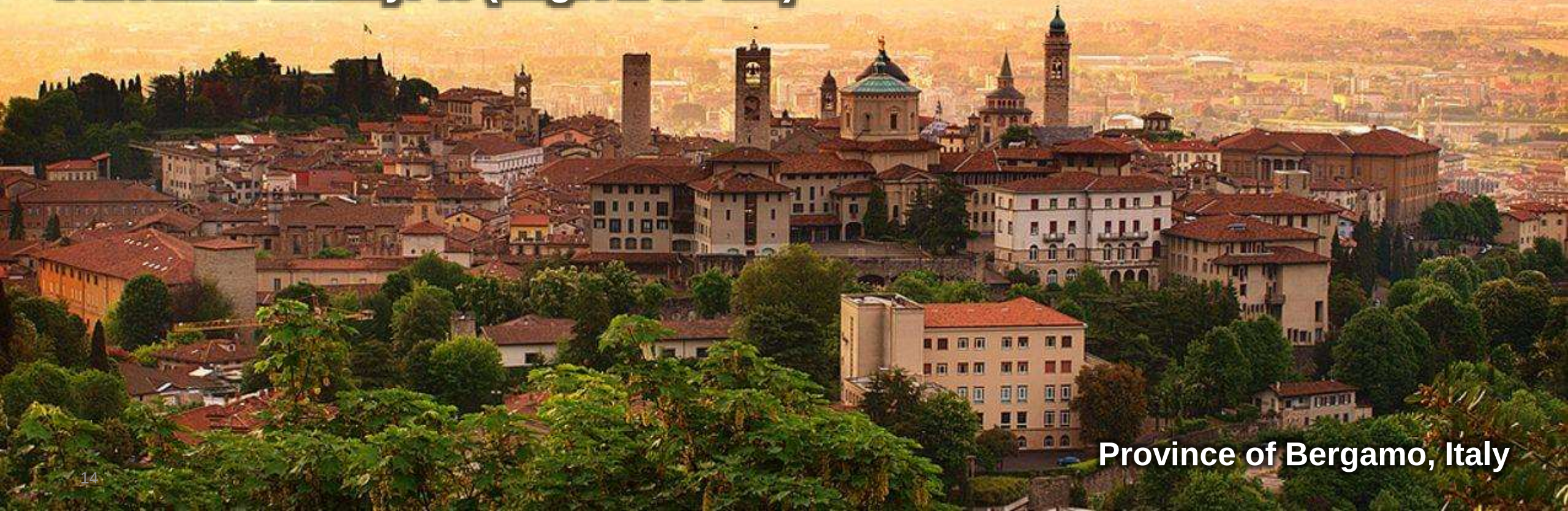
Network Connectivity with WiBAS™-Connect

Ultimate Target: Ultra-Broadband Rates in 21 Regions

DL: 100 Mbps / UL: 50 Mbps

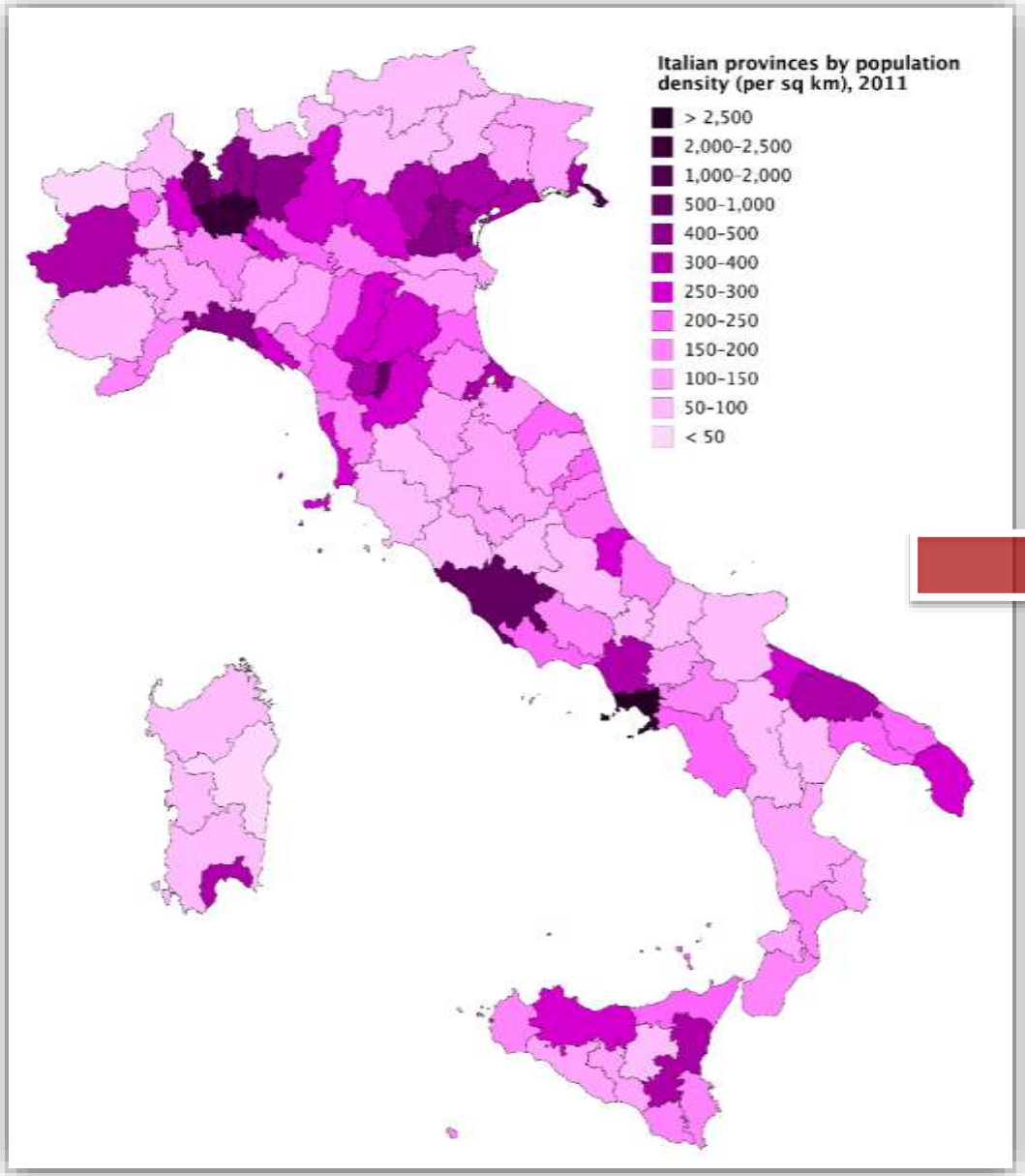
Frequency Spectrum: Blocco L, 2x112 MHz

Subscriber density: 45 (target is 90-120)



Province of Bergamo, Italy

Population Density – Italy, Base Station Deployments (EOLO)



EOLO FWA campaign 2016-2019

2016 Sub 6GHz system Unlicensed

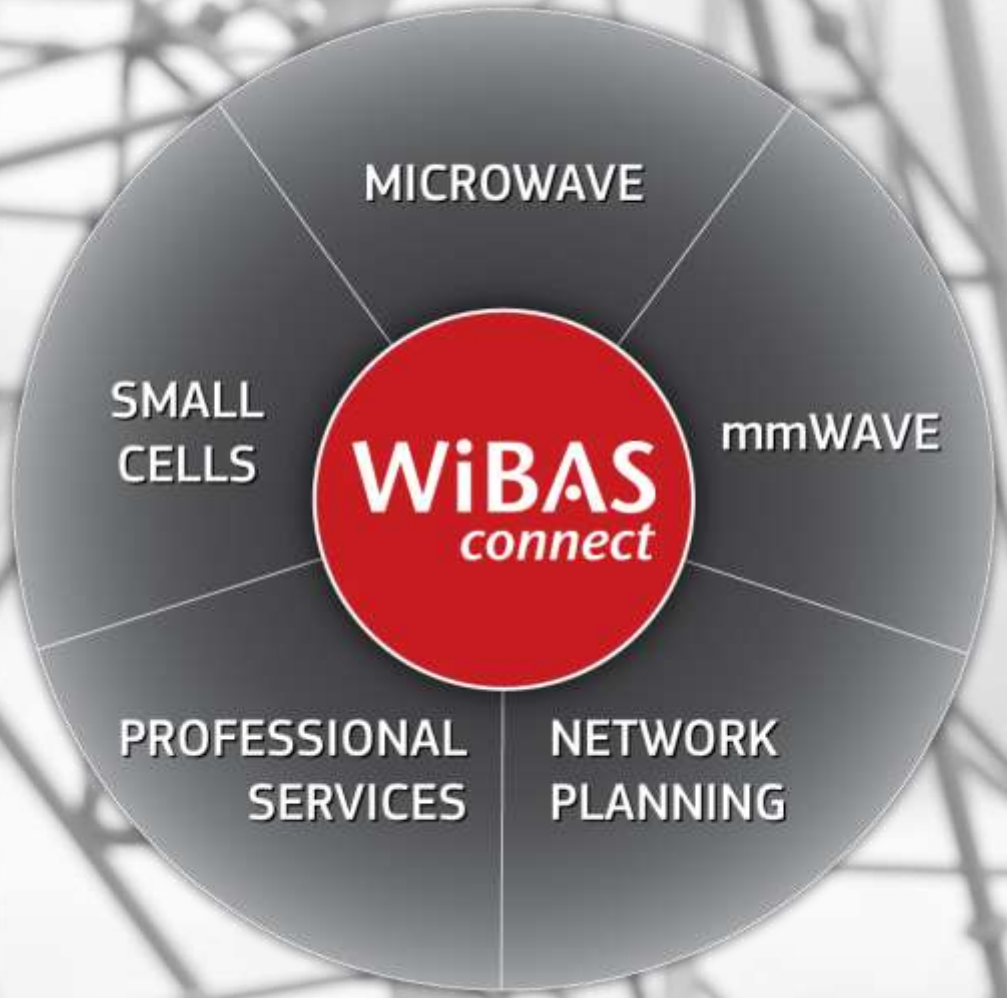
2019 28 GHz Licensed

EOLO 100 Mbps Fixed Wireless Service (EOLO Centa)

VS

Telecom Italia FTTH Service

Our Rural Toolkit



thank you

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