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T E L E C O M

Technology Shaping the Future

Wireless Fiber for Rural Broadband Extension

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Rural Landscape Challenges

Landscape

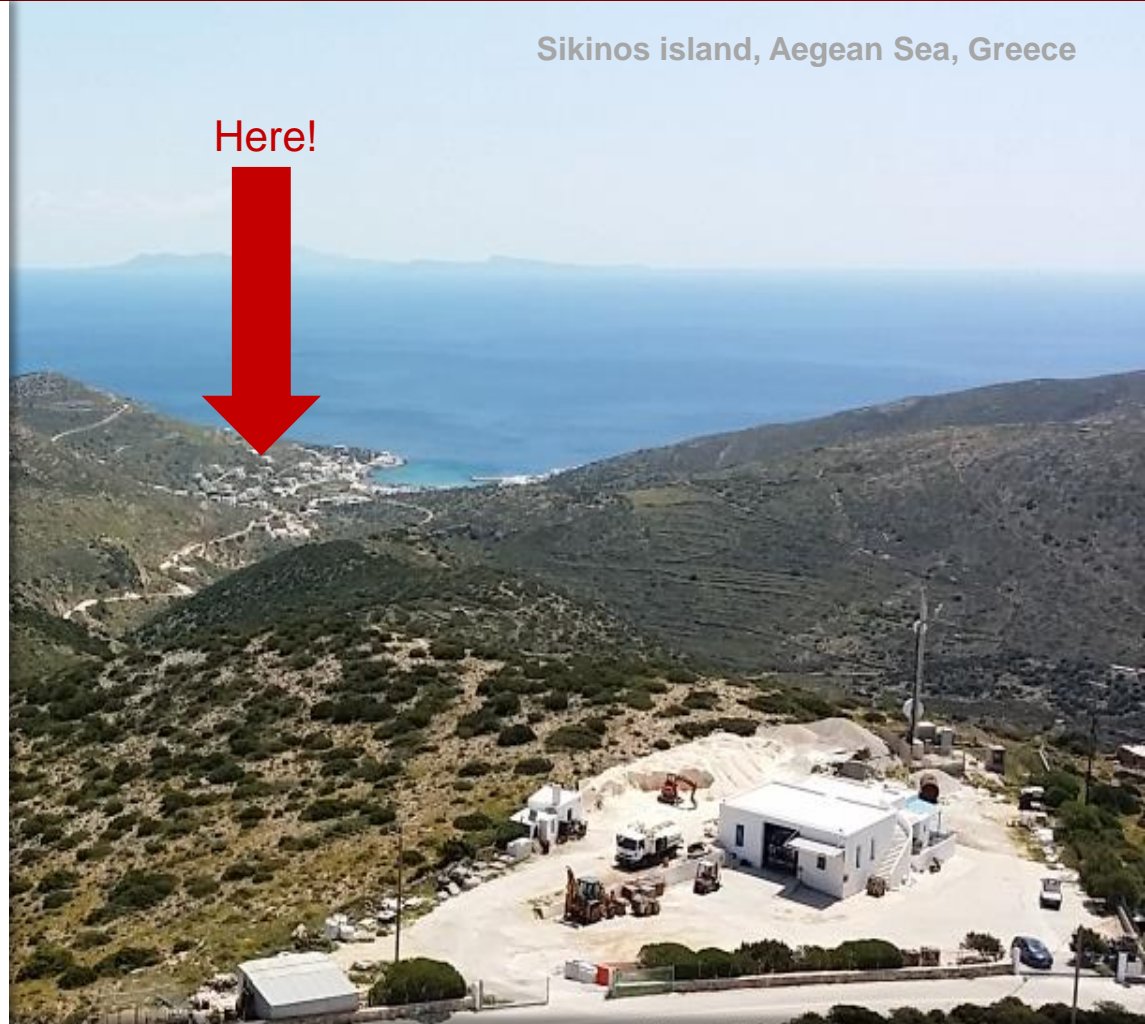
- ▶ Adverse terrain
- ▶ Scattered villages
- ▶ Clustered houses
- ▶ Hard or costly to reach

Challenges

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

Sikinos island, Aegean Sea, Greece

Here!



How can Ultra Broadband Services reach here?

A Global Challenge



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



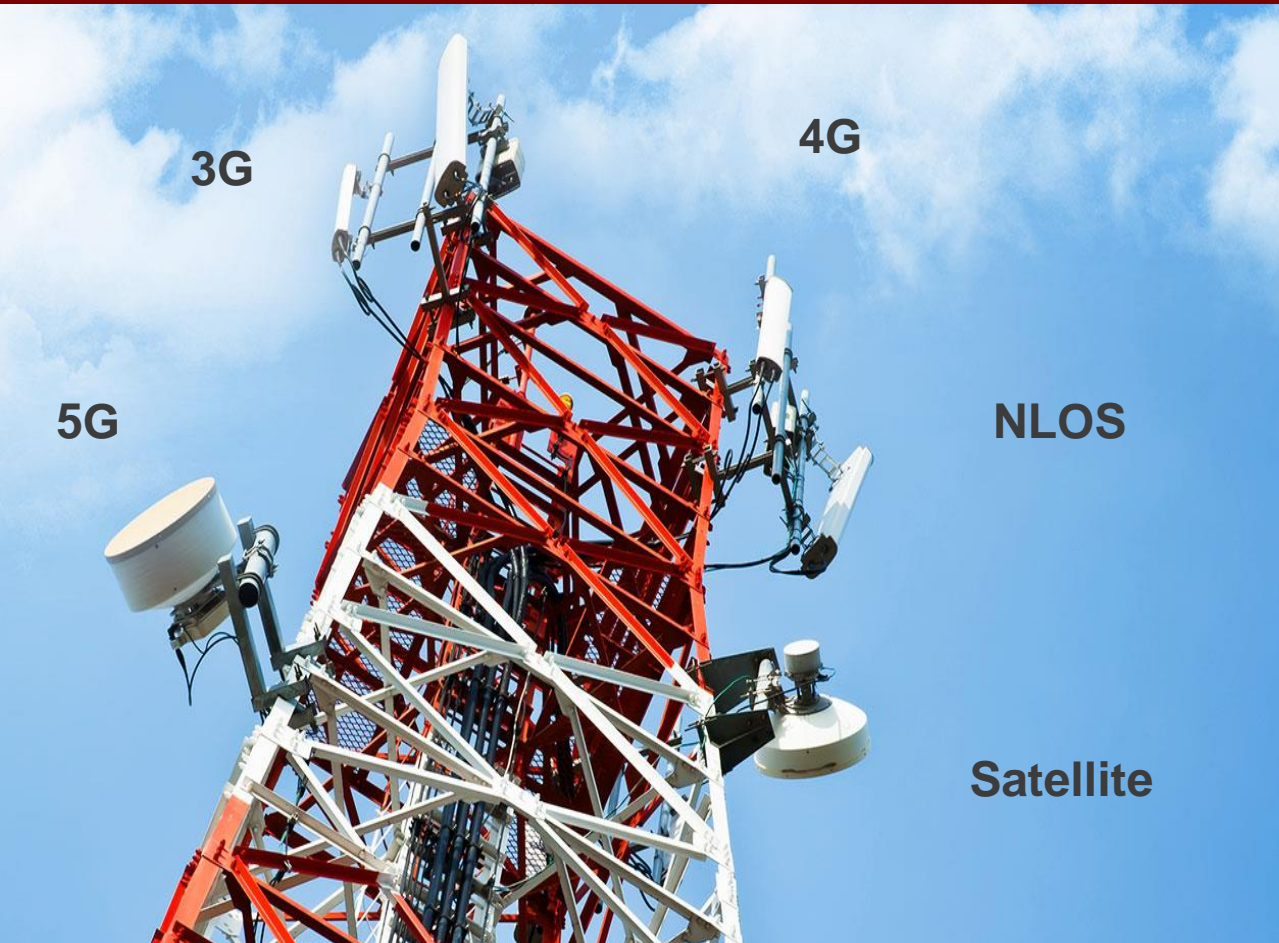
No Rural Technology Champion



Mountainous village, Zagori Province, Epirus, Greece

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

Myriad Technologies – A Common Deficit!



Technologies were not designed on purpose for Rural Broadband.

The Objective for Rural Broadband



The objective is triple:

1. Minimize Time to Market
2. Expand to the furthest possible geographic coverage
3. Have room for capacity growth

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

More than 20 years of experience



1st Nationwide Rural Telephony, Greece, 1996

IAS-W Analog I/F



Contract Short Description – Capacity	Customer	Areas of Deployment
<ul style="list-style-type: none"> • Turn-key delivery of HW/SW/Services for Subscriber Rural Systems • Capacity ~150,000 POTS & ISDN subscriber lines • Deployment during 2001-to date 	O.T.E. (Greece)	Rural/Suburban
<ul style="list-style-type: none"> • Supply/Supervision of Installation/Commissioning of WLL Systems for East Africa operators • Capacity 56,000 POTS subscriber lines • Deployment during 2003-2005 	Golden Telecom (E. Africa)	
<ul style="list-style-type: none"> • Supply/Supervision of Installation/Commissioning of Digital Wireless Access Systems (IAS-W) • Capacity 14,000 subscriber lines • Deployment during 2003-2005 	Center Telecom (Russia)	Suburban/Rural
<ul style="list-style-type: none"> • WLL Data Network Deployment • Capacity 700 subscriber lines • Deployment during 2003-2004 	PT Com, SA (Portugal)	Rural
<ul style="list-style-type: none"> • Supply/Installation/Commissioning of 3.5 GHz Point-to-MultiPoint Systems • Frame Contract for 4,800 data nx64 kbps & ISDN lines • Deployment 12 Base Stations and 110 Terminals for data leased lines, ISDN services • Deployment during 2003-2005 	Matav RT (Hungary)	Urban

Our Rural Proposition for 5G Speeds... Now!



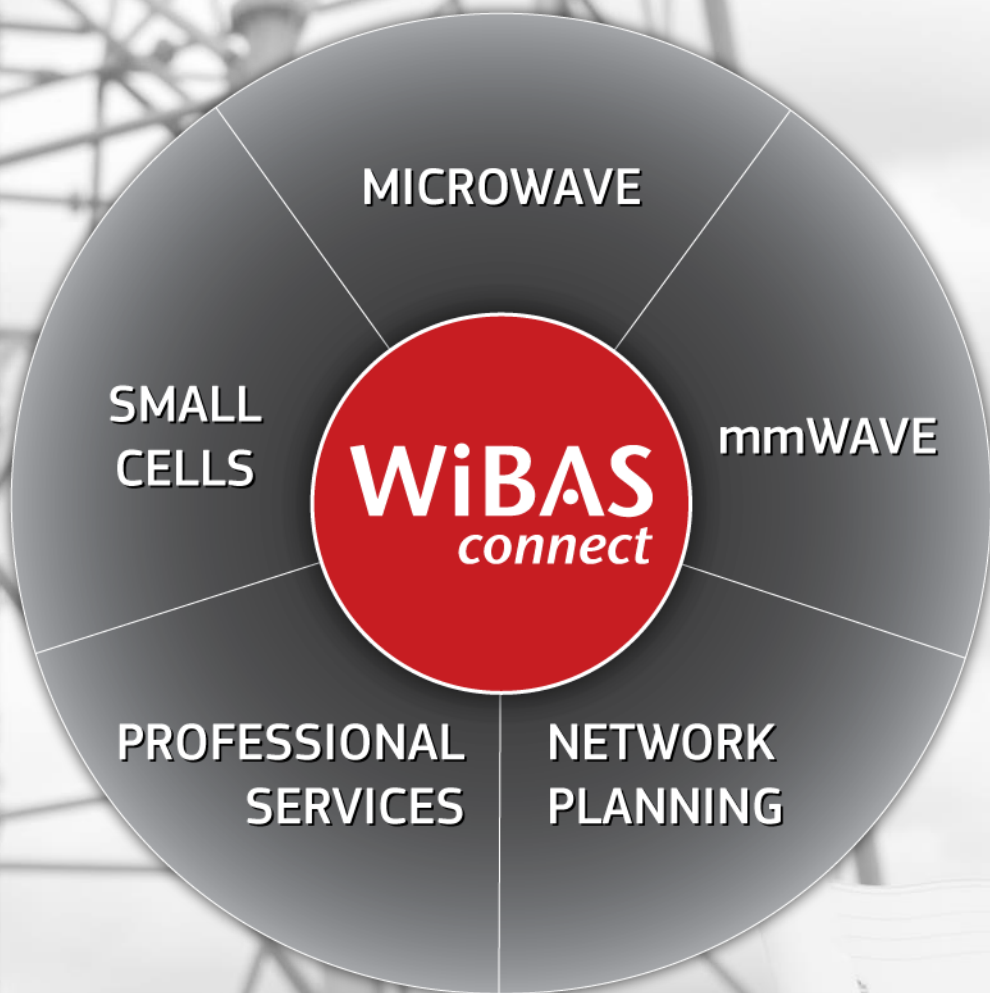
The Best Approach to Ultra Broadband Objectives

WiBAS™-Connect



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

Our Rural Toolkit

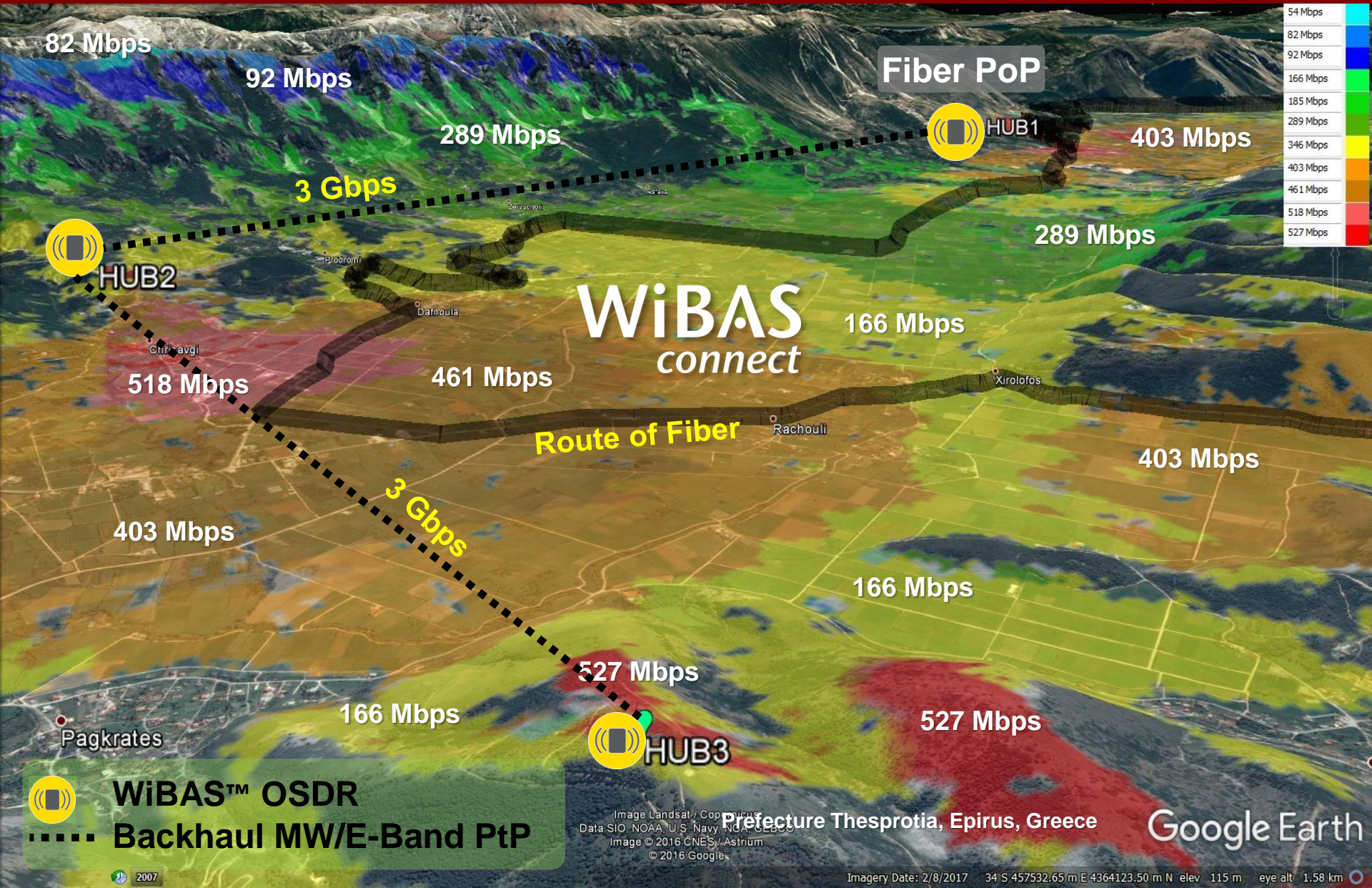


Easy Deployment - Everywhere



The Rural Greece Case

Network Connectivity with WiBAS-Connect



The Rural Italy Case

Network Connectivity with WiBAS™-Connect



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Valley in Lombardia, Greece

- ▶ **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)**

A Full Technology Ecosystem



Network/Service
Fulfillment &
Assurance



Revenue
Management &
Monetization



Network &
Operations
Analytics



Customer
Experience
Management &
360° view



Omni-channel
Campaign
Management



Digital Content
Services
Delivery



Voice Service
Hosting



E2E Security -
Defense in
depth



Network &
Service
Security



Cloud
Hosting

The Perfect Solution for Home & Business Access



HOME ACCESS

- ▶ Triple-play
- ▶ High-quality connection
- ▶ Easy to setup

BUSINESS ACCESS

- ▶ High bandwidth
- ▶ Symmetrical capacity
- ▶ Easy to setup



thank
you



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