

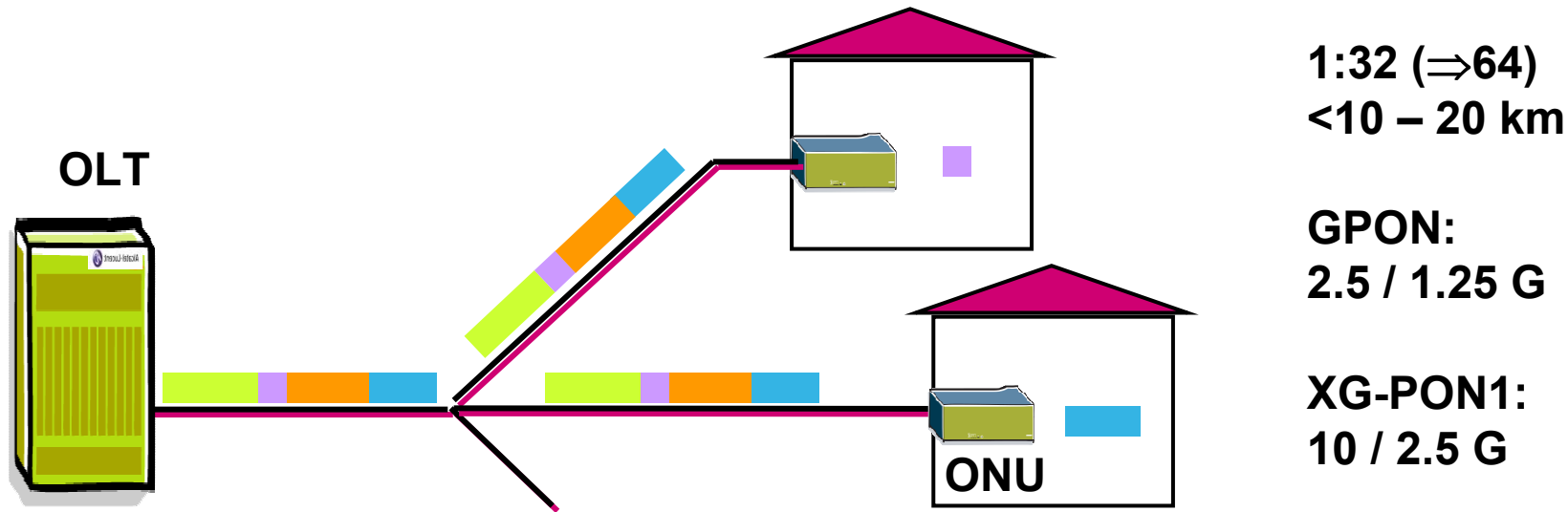


# FTTH technology in the aftermath of Sandy

Peter Vetter (Bell Labs, Murray Hill)

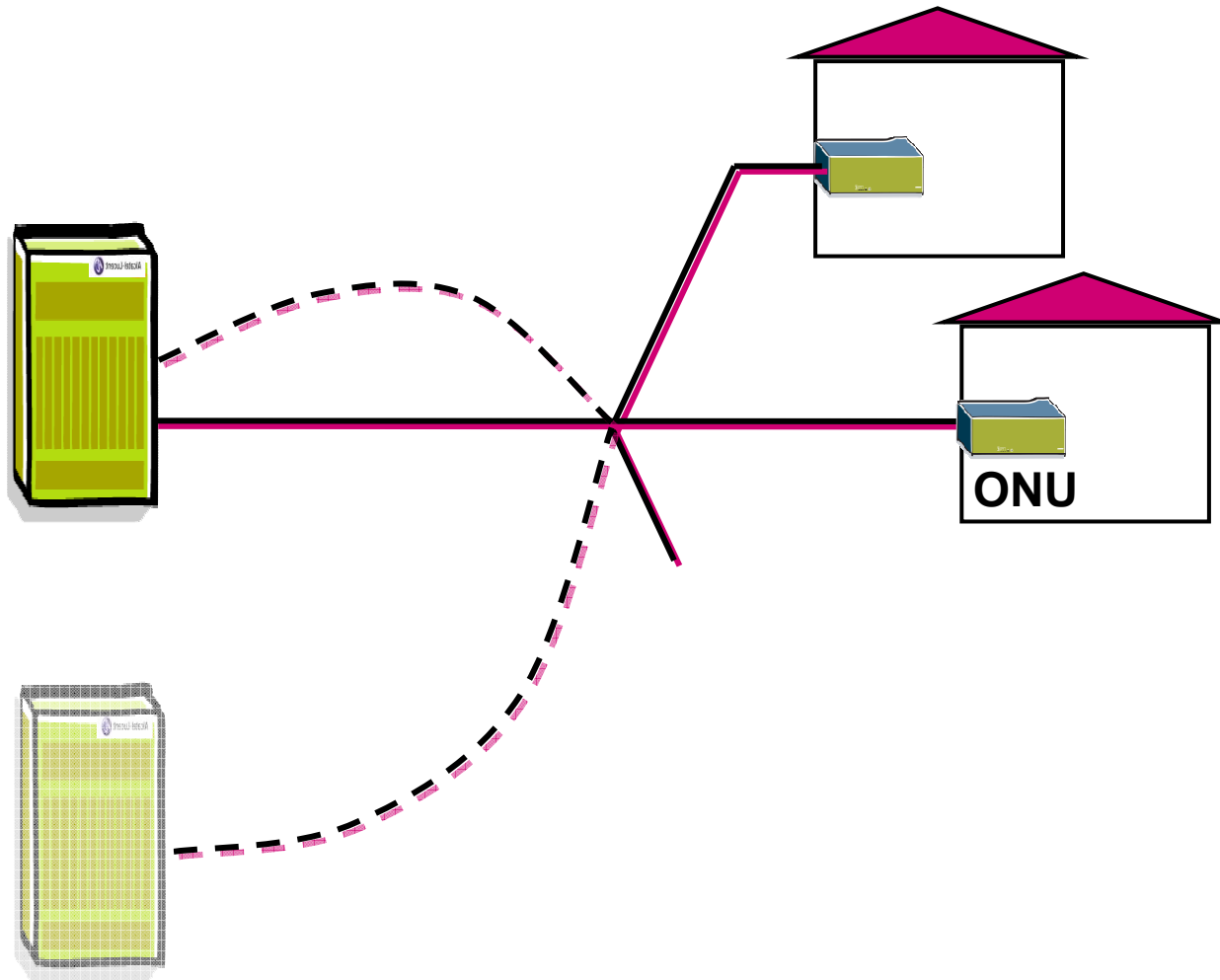
..... Alcatel·Lucent 

# FTTH - PON: a robust wireline access solution



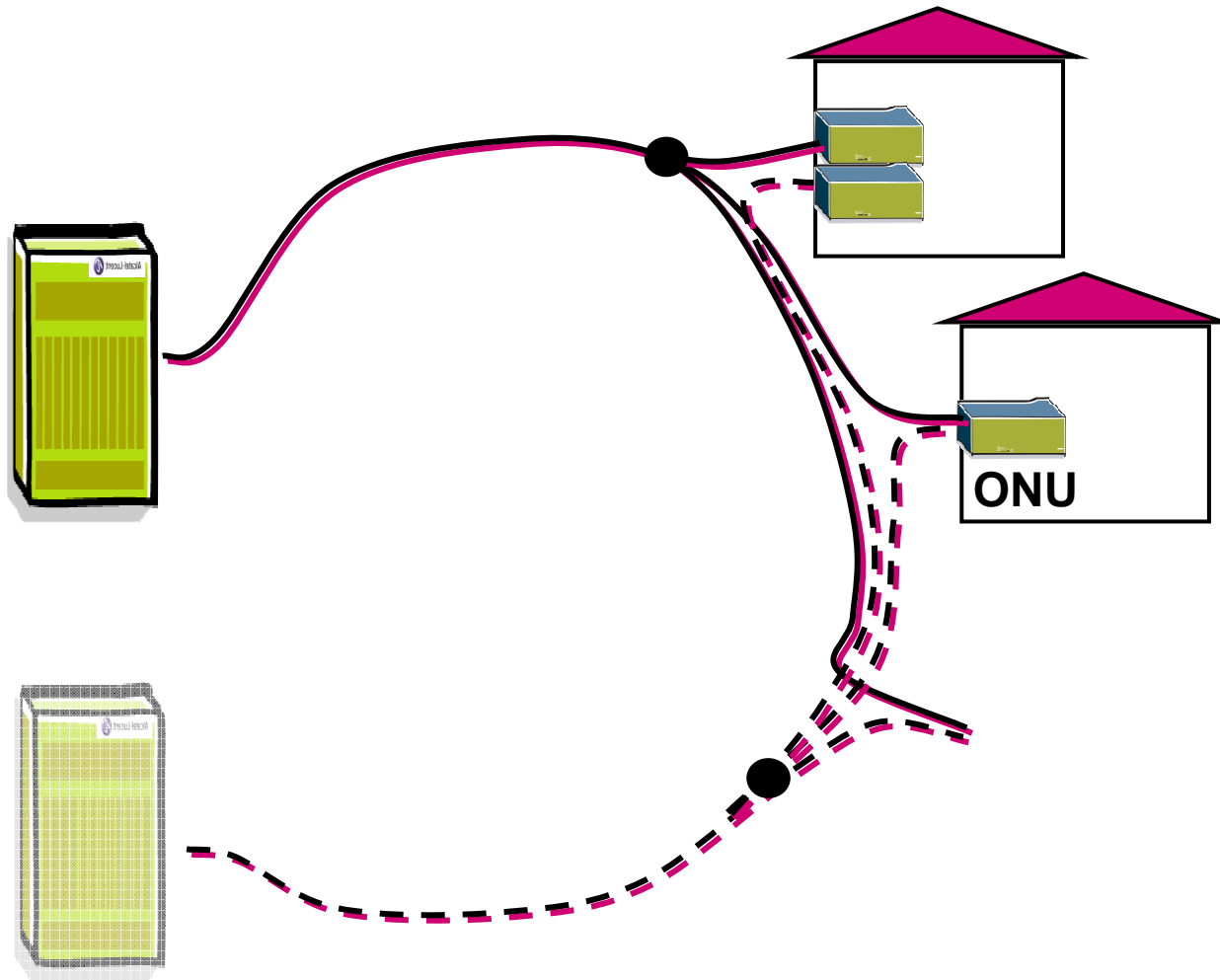
- Fully passive distribution network over long distances
- No active equipment in field => improved reliability
- Future safe
- Power efficient
- Best choice when replacing damaged copper infrastructure or investing in civil works for underground utilities

# Resilience options (X)G-PON



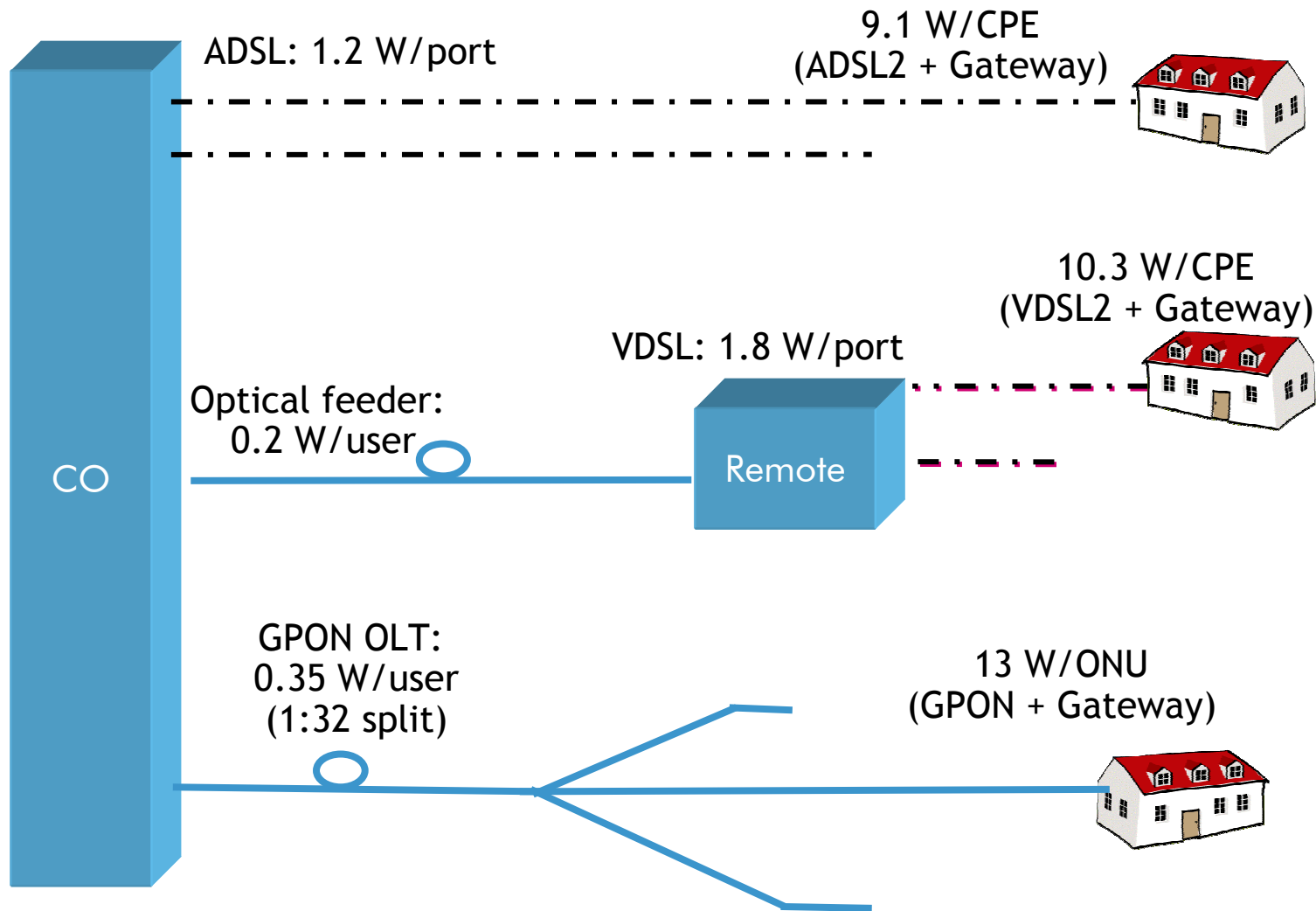
1. Feeder redundancy
2. + Dual homing

# Resilience options (X)G-PON



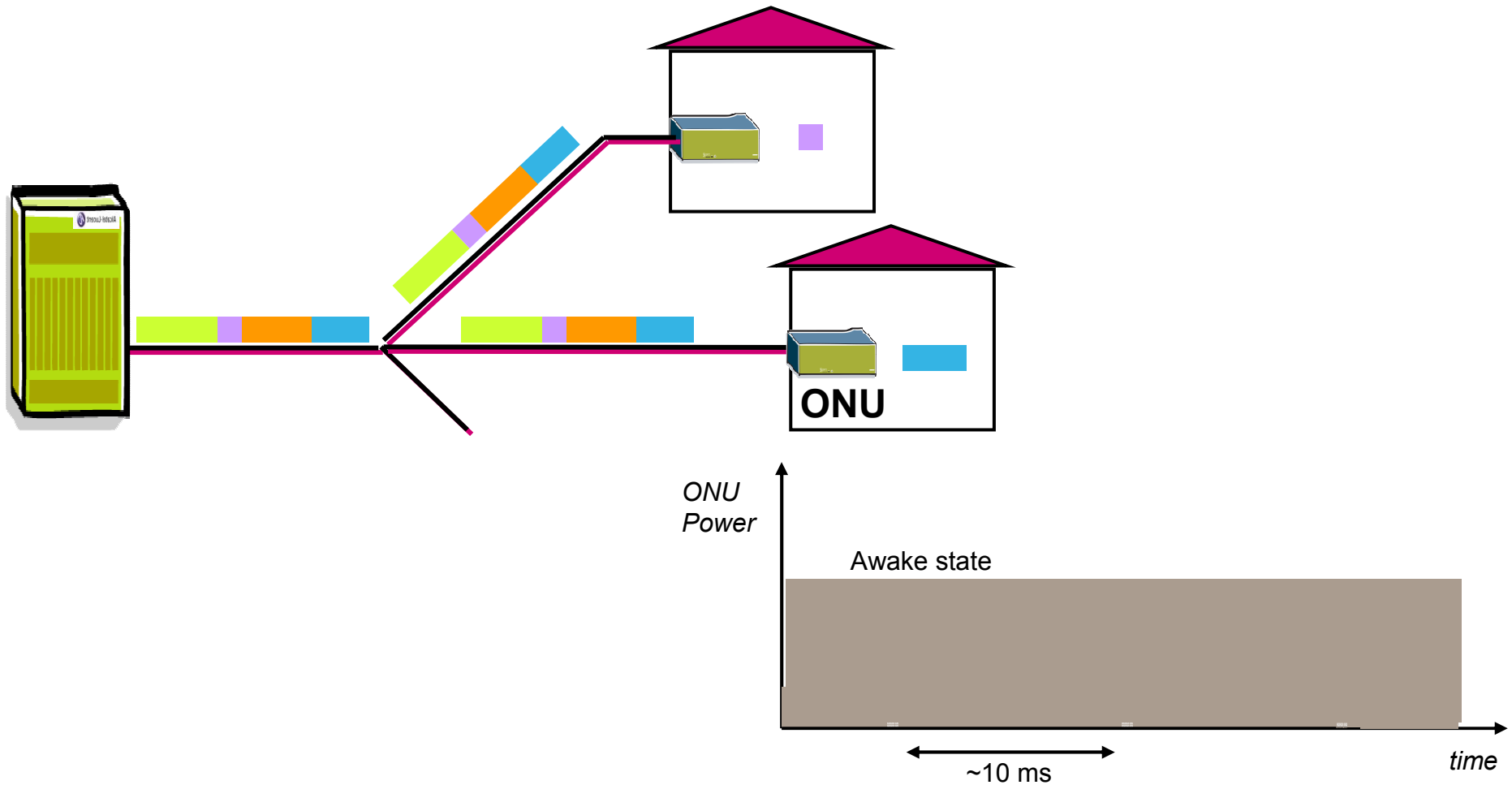
1. Feeder redundancy
2. Dual homing
3. Full redundancy
4. + ONU redundancy

# Wireline access power efficiency

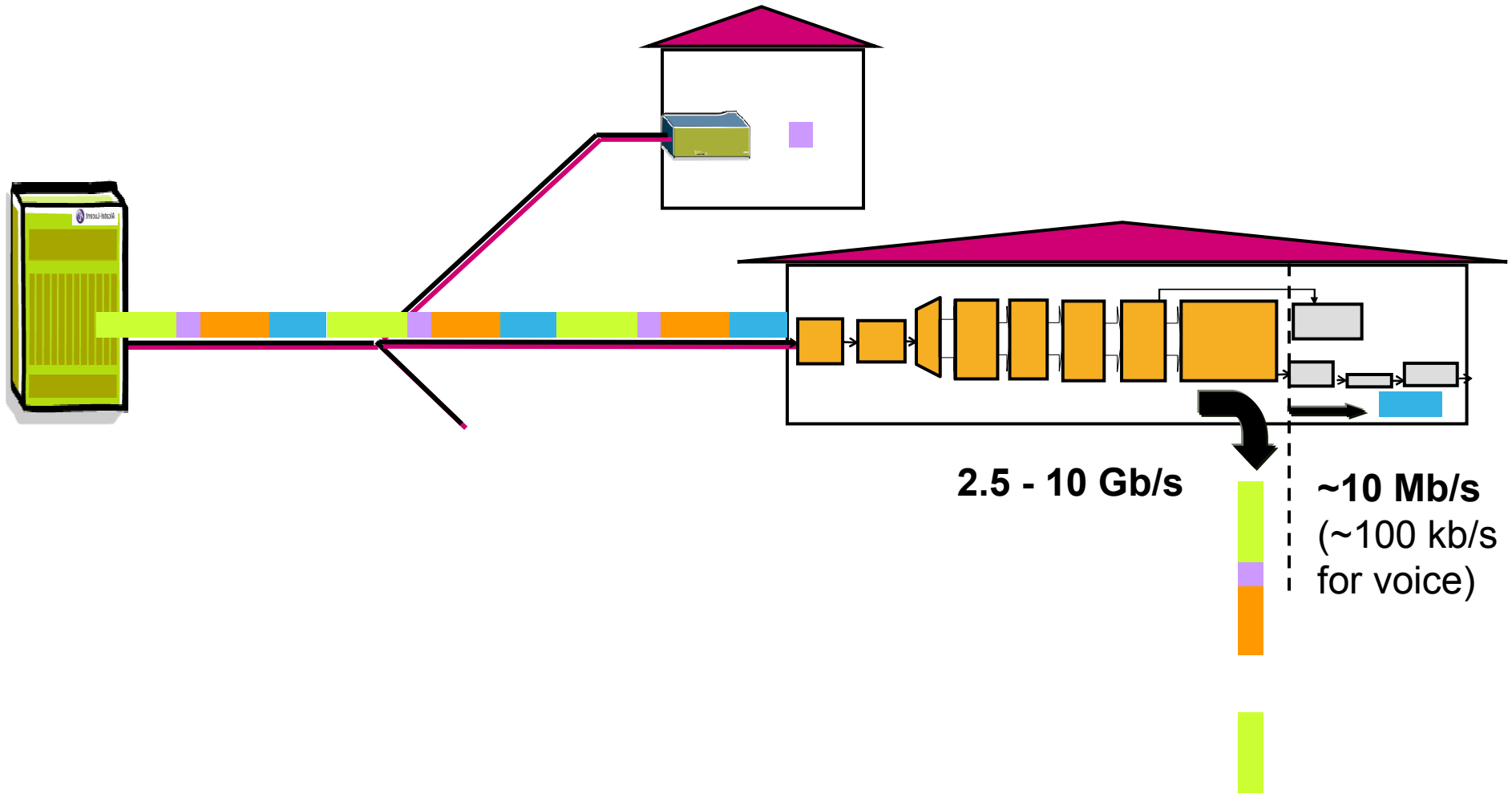


(Upper bound values from EU CoC – CPE includes 4xFE, WiFi, and voice)

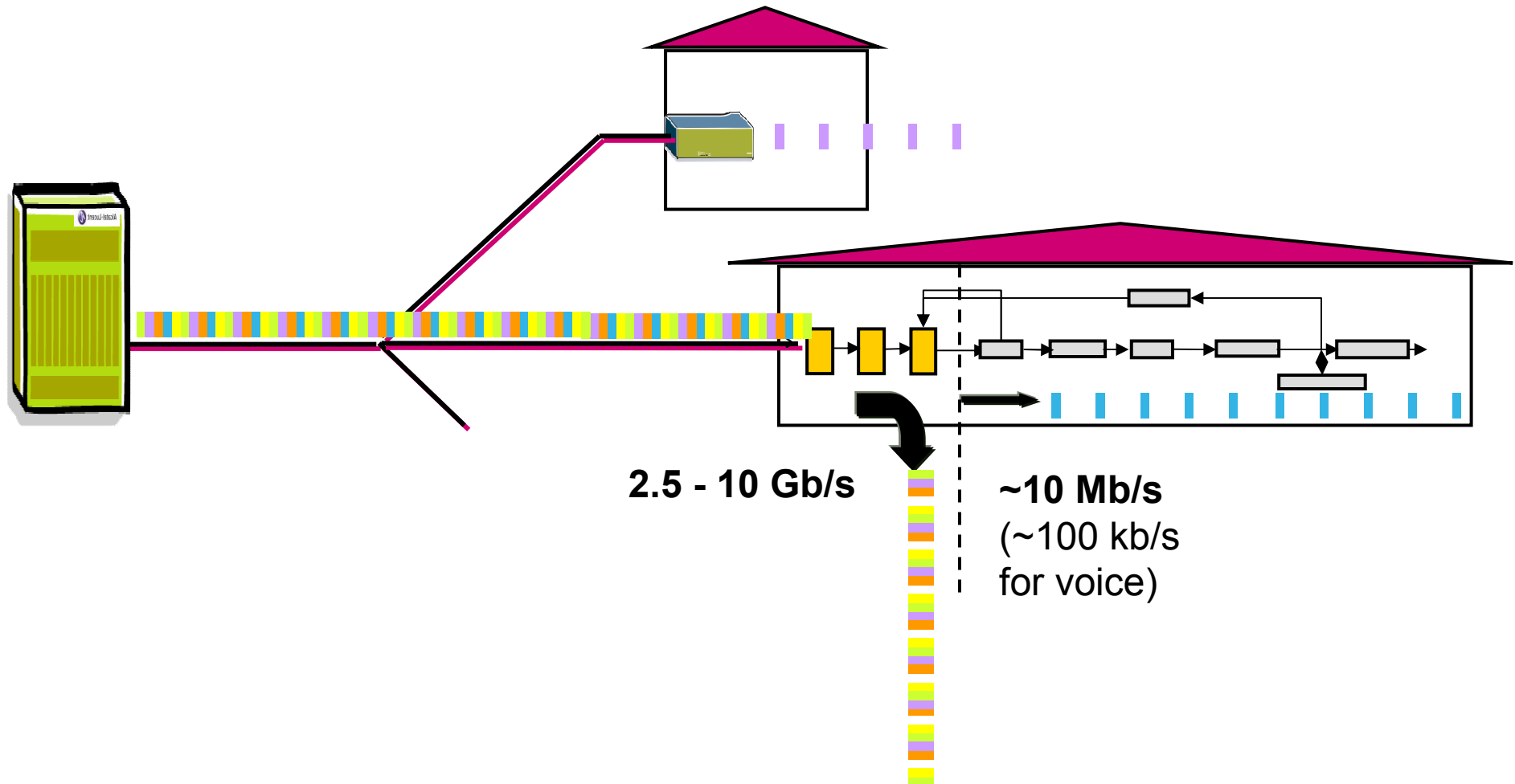
# Sleep Mode in Standard (X)G-PON



# Standard (X)G-PON



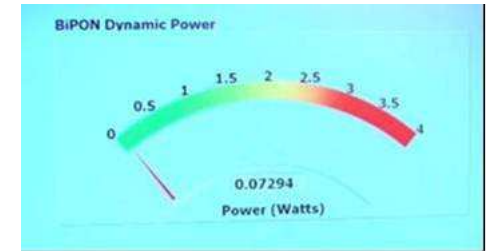
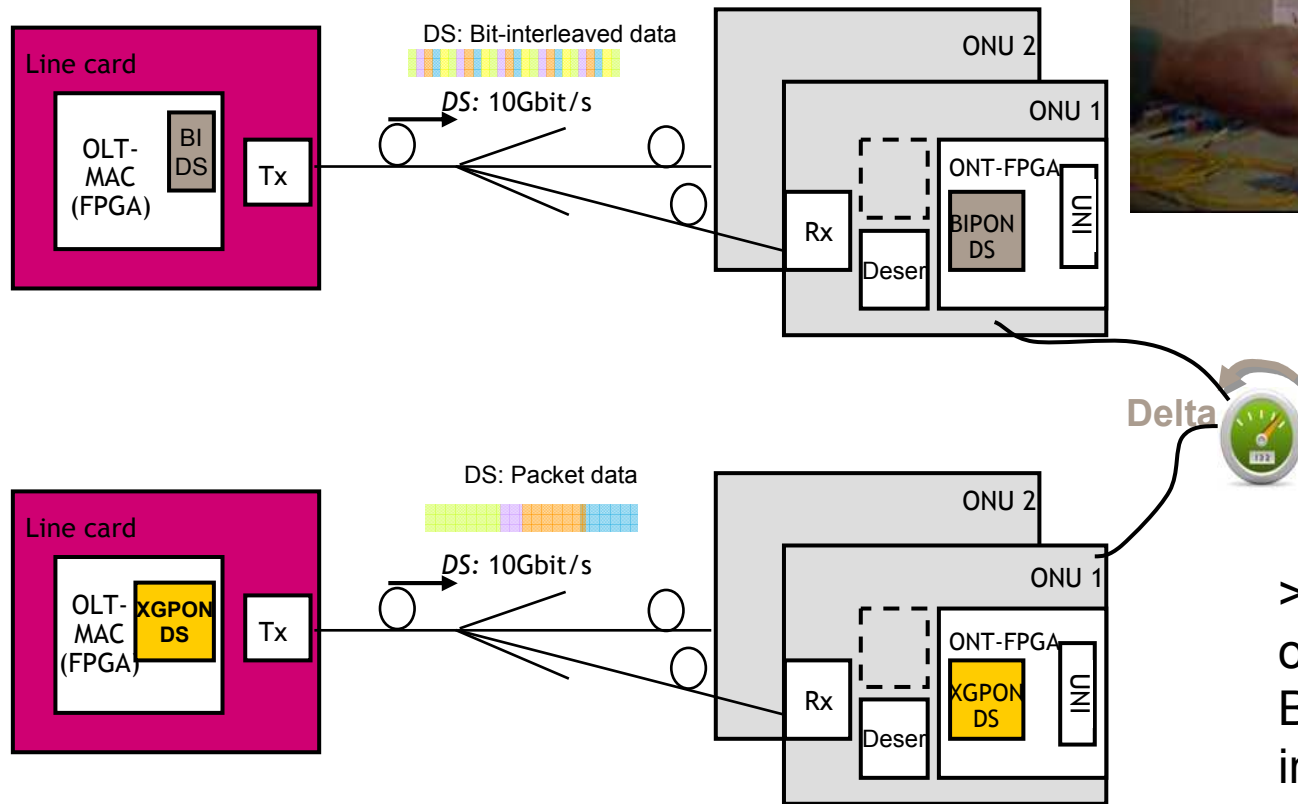
# Bit-Interleaving PON



*Note: Long term research concept*



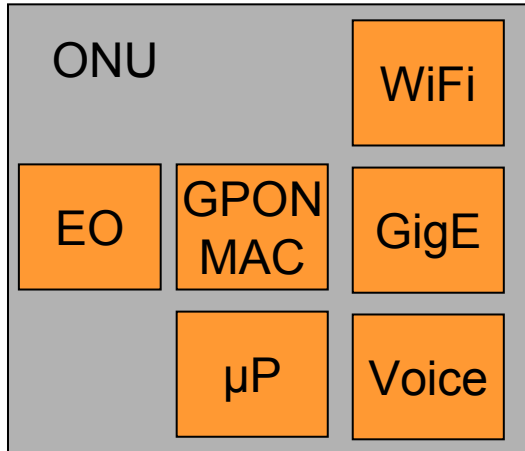
# Demonstrator



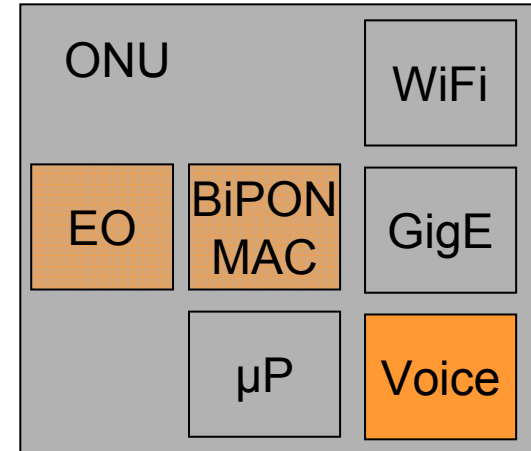
>10x better efficiency of MAC electronics for Bi-PON than XG-PON in cyclic sleep mode !

*Note: Long term research concept*

# Combination of improvement to enable new power back-up approaches



Power shedding  
Cyclic sleep mode  
Bi-PON (long term)  
Moore's law



10 W  
~8 h on lead-acid battery

Standby 0.1 W - Active voice: 1 W  
~8 h active on 4 rechargeable AA cells  
~3 d standby on 4 rechargeable AA cells



Ref: forums.verizon.com



Ref: wikipedia.org