

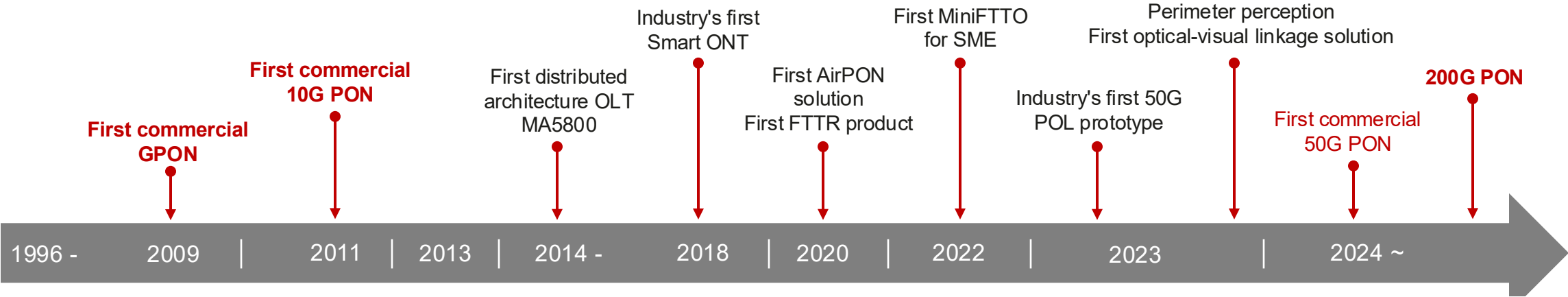
Fast and Stable Infrastructure, accelerating ISP Intelligent

Jan Horacek

April 24th, 2025

Kam kráčí digitální síť, Olomouc, Czech Republic

Huawei Leading Optical Access Communications Technology Innovation



Core Innovation and Outstanding Contribution



Huawei Intelligent OptiX Network Wins Three International Technology Innovation Awards in 2021



Huawei All-Optical Access Wins "Four Awards" at the World Broadband Forum 2023 and the European Optical Communication Conference

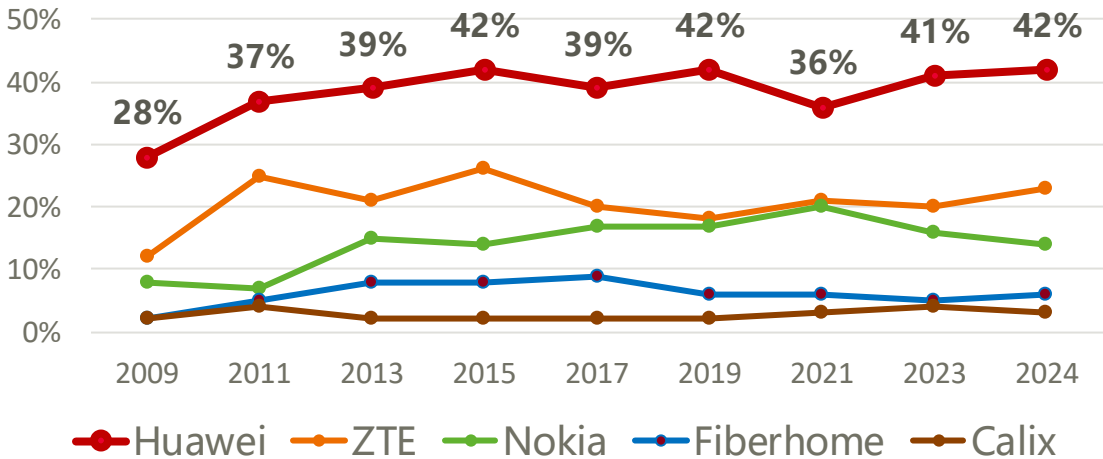


Huawei won the "Outstanding FTTH Solution Award" in 2022, BBWF, for its leading 50G PON innovation.



Huawei iFTTR F50 Wins the Leading Home Wi-Fi Networking Service Award at the Broadband World Forum 2024

Access Network Market Share: No.1 for 16 Consecutive Years



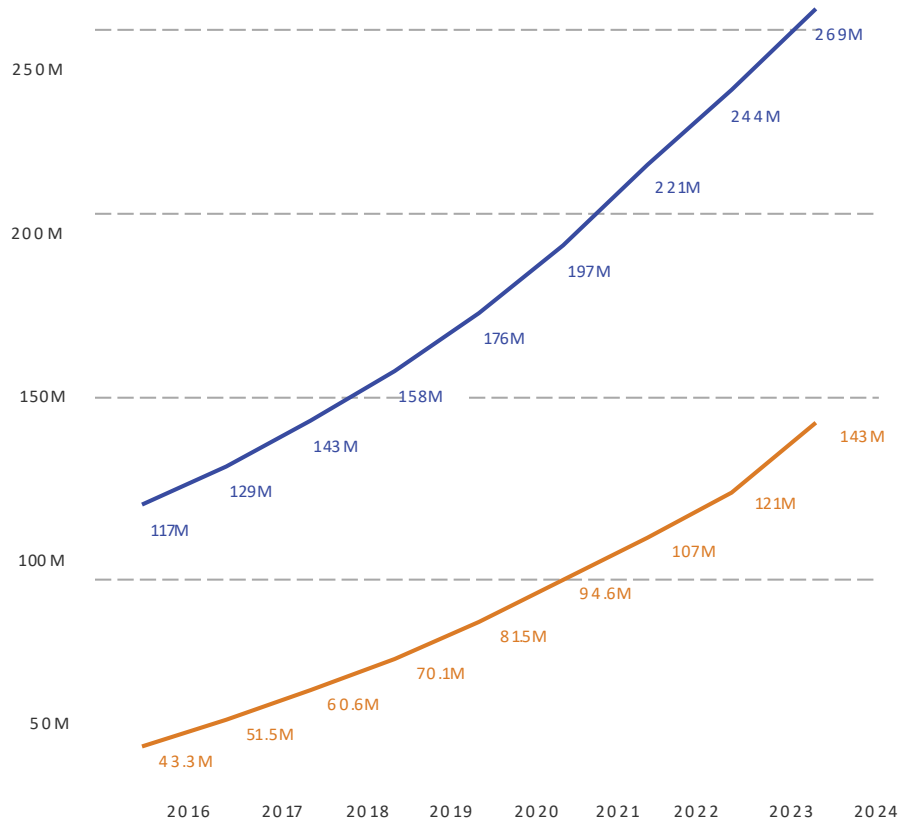
Agenda

1 Outlook of EU FTTH Development

2 Huawei Fast and Stable FTTH Infrastructure

FTTH Is the Trend: EU39 FTTH penetration rate reaching 39.6%

 74.61% Coverage
  850,622,674
  360,342,647

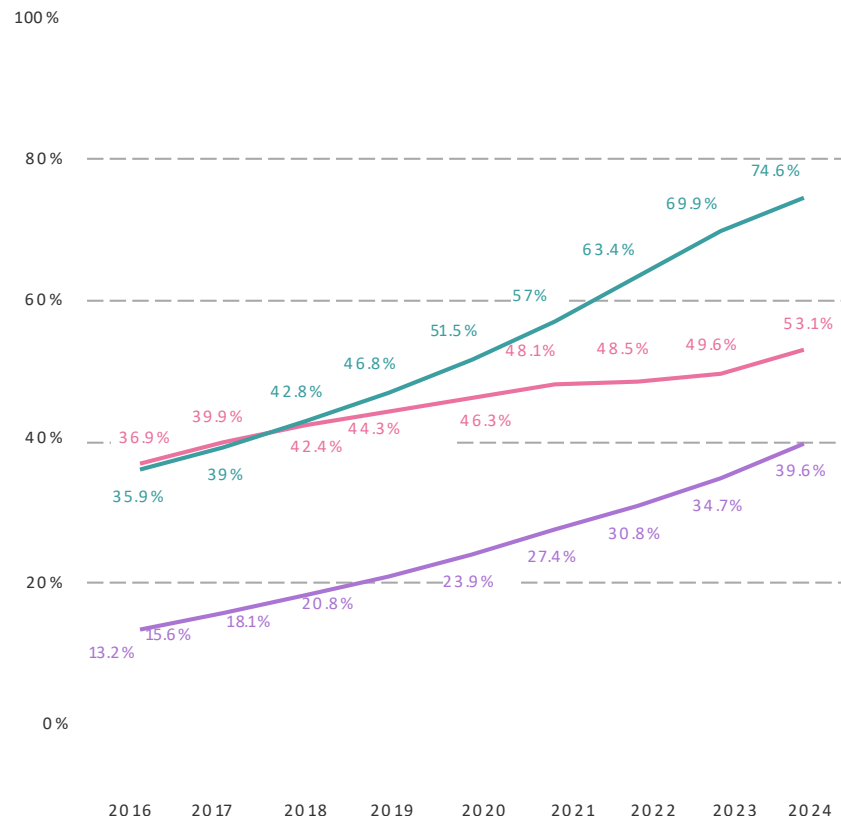


■ FTTH/B Subscribers
■ FTTH/B Homes Passed

Last 3 Years

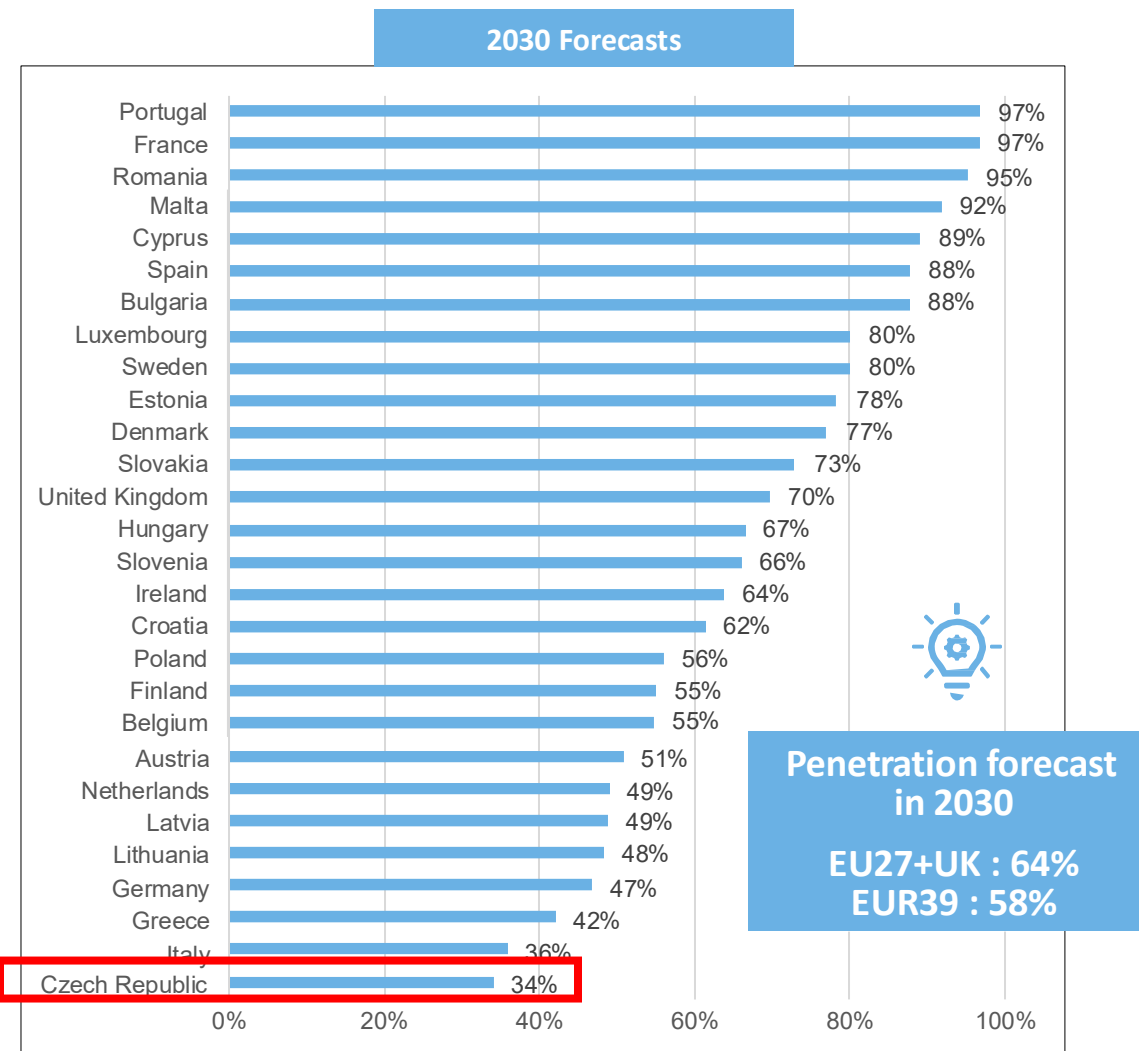
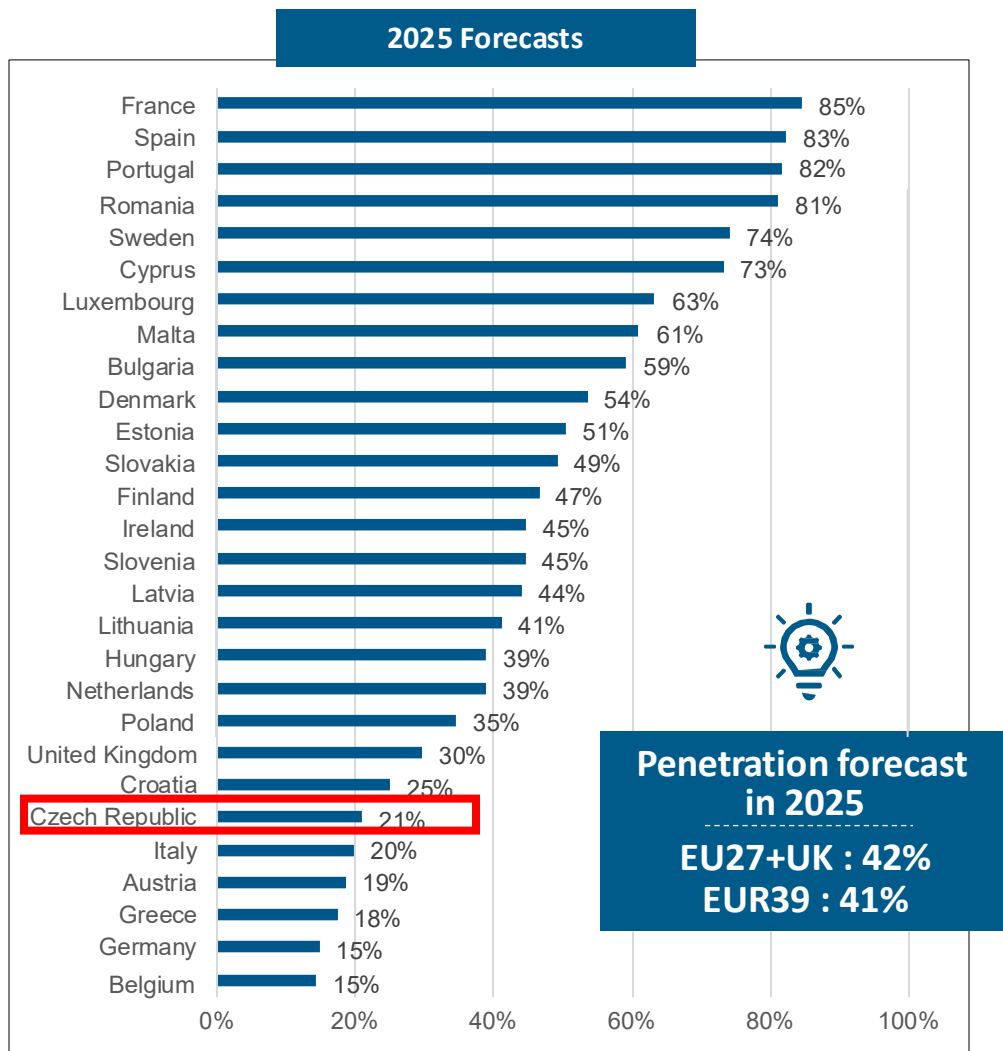
Households passed growth rate % 21.6%

Subscribers growth rate % 32.9%



■ FTTH/B Take-up rate %
■ FTTH/B Coverage rate %
■ FTTH/B Penetration rate %

2025-2030 FTTH Penetration Rate Forecast



Source: IDATE for FTTH Council EUROPE

Status of Copper Switch-off in EU Countries

no plan publicly available (15)

- Austria, Bulgaria, Croatia, Estonia, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Switzerland
- NRAS ensure the switch-off transparent timetables and conditions
- Gigabit recommendation, establish a substitution matrix



commercial closure or switch-off started (12)

- Belgium, Cyprus, **Czech**, Denmark, Finland, France, Hungary, Luxembourg, Netherlands, Romania, Spain, Sweden
- Five countries: target date complete switch-off:
Spain (2025.5) , Sweden (2026) , Ireland (2028) ,
Luxembourg (2030) , France (2030)

Availability of alternative products

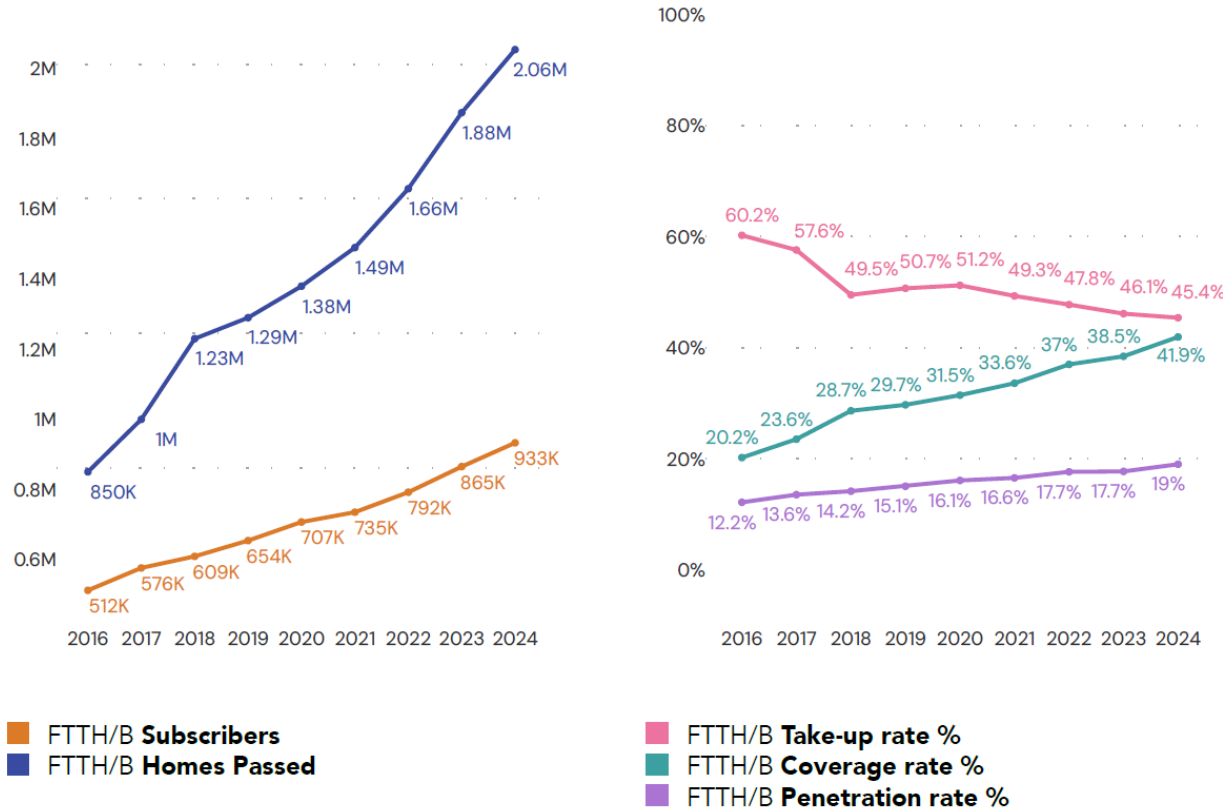
Full transparency towards

Non-discrimination

Source: FTTH Council Report 2025

FTTH Development Progress in Czech Republic

Trends of the main FTTH KPIs



2024 VS 2022

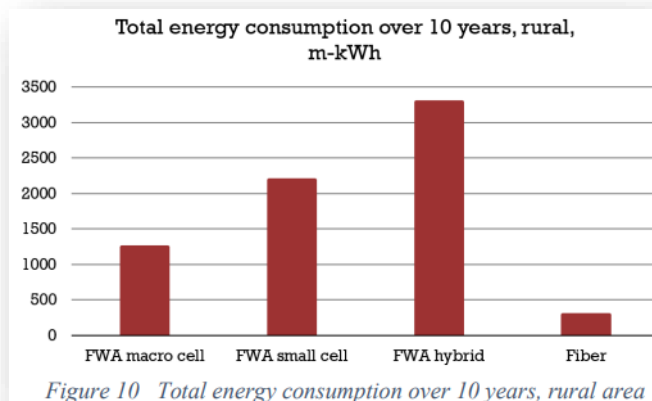
- 1 Home passed**
↑ 24% (1.66M to 2.06M)
- 2 Home Activated**
↑ 18% (792K to 933K)
- 3 Coverage rate**
37% ↗ 41.9%

Source: FTTH Council Report 2025

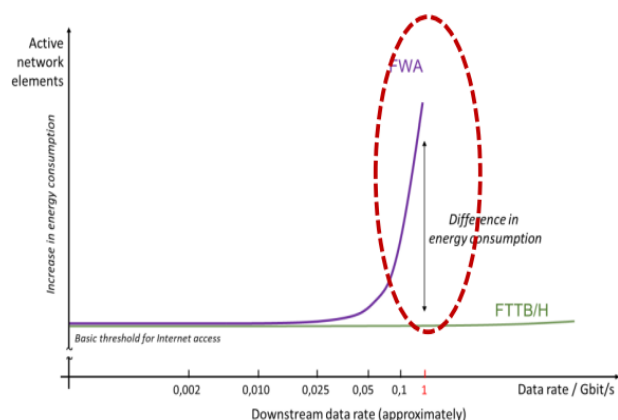
Energy Consumption and Cost Impose Constraints on FWA

① Energy

Fiber use 20% of FWA energy

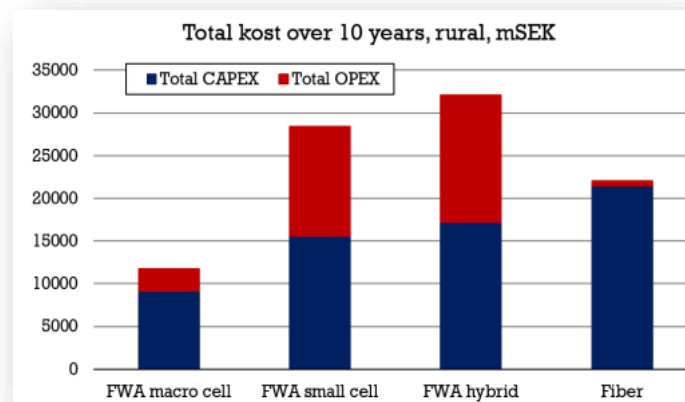


FWA consumes more energy per Giga
Under high penetration of Fiber

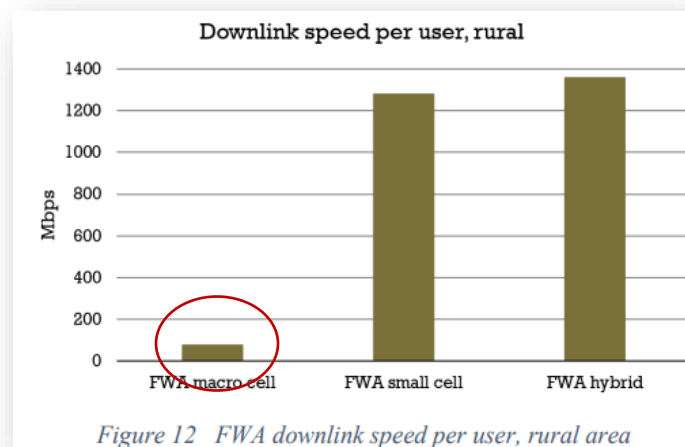


② Cost

Fiber save 30% cost



FWA macro cost is low but speed
is limited



Agenda

1 Outlook of EU FTTH Development

2 **Huawei Fast and Stable FTTH Infrastructure**

Typical challenges in FTTH development

Regulatory

Regulatory Barriers	<ul style="list-style-type: none">• Regulatory and Permitting Delays: Varying regulations and permitting processes can cause delays, drive up costs, and increase project complexity.
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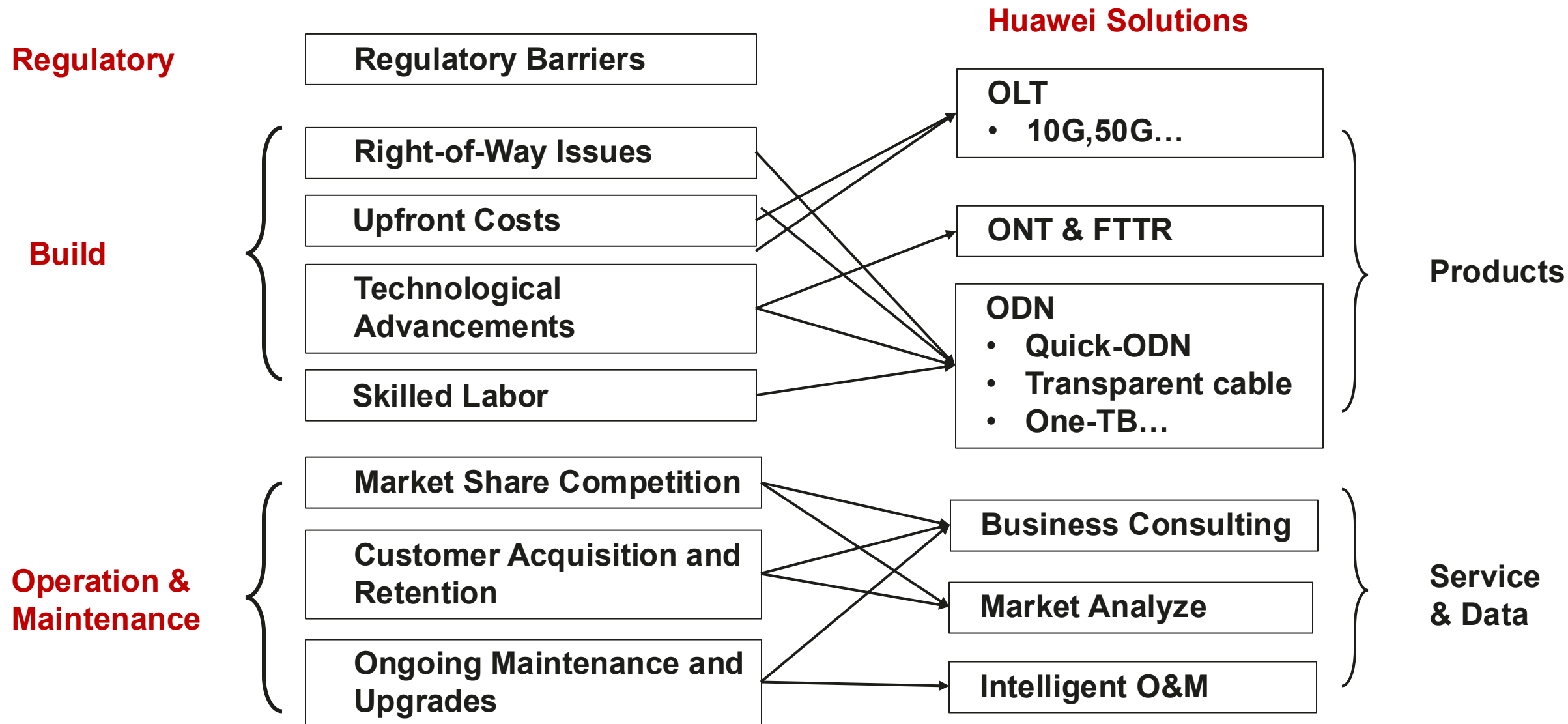
Build

Right-of-Way Issues	<ul style="list-style-type: none">• Overcoming these regulatory and logistical hurdles is a substantial challenge.
Upfront Costs	<ul style="list-style-type: none">• High initial costs, especially in rural and underserved areas, can be a major barrier.
Technological Advancements and Compatibility	<ul style="list-style-type: none">• Failing to do so can result in network obsolescence and significant re-investment.
Skilled Labor	<ul style="list-style-type: none">• FTTH construction and maintenance require skilled labor. Ensuring access to qualified workers is critical to avoiding delays and escalating labor costs

Operation & Maintenance

Market Share Competition	<ul style="list-style-type: none">• Gaining market share demands strategic pricing, marketing, and exceptional customer service.
Customer Acquisition and Retention	<ul style="list-style-type: none">• Attracting and retaining customers is an ongoing challenge
Ongoing Maintenance and Upgrades	<ul style="list-style-type: none">• Ongoing maintenance and timely technological updates are essential for ensuring reliability and speed.

Huawei can help on for these challenges



Huawei FTTH Solution Drives Business Success for ISPs

Pain Points



High investment



Slow construction



High OPEX

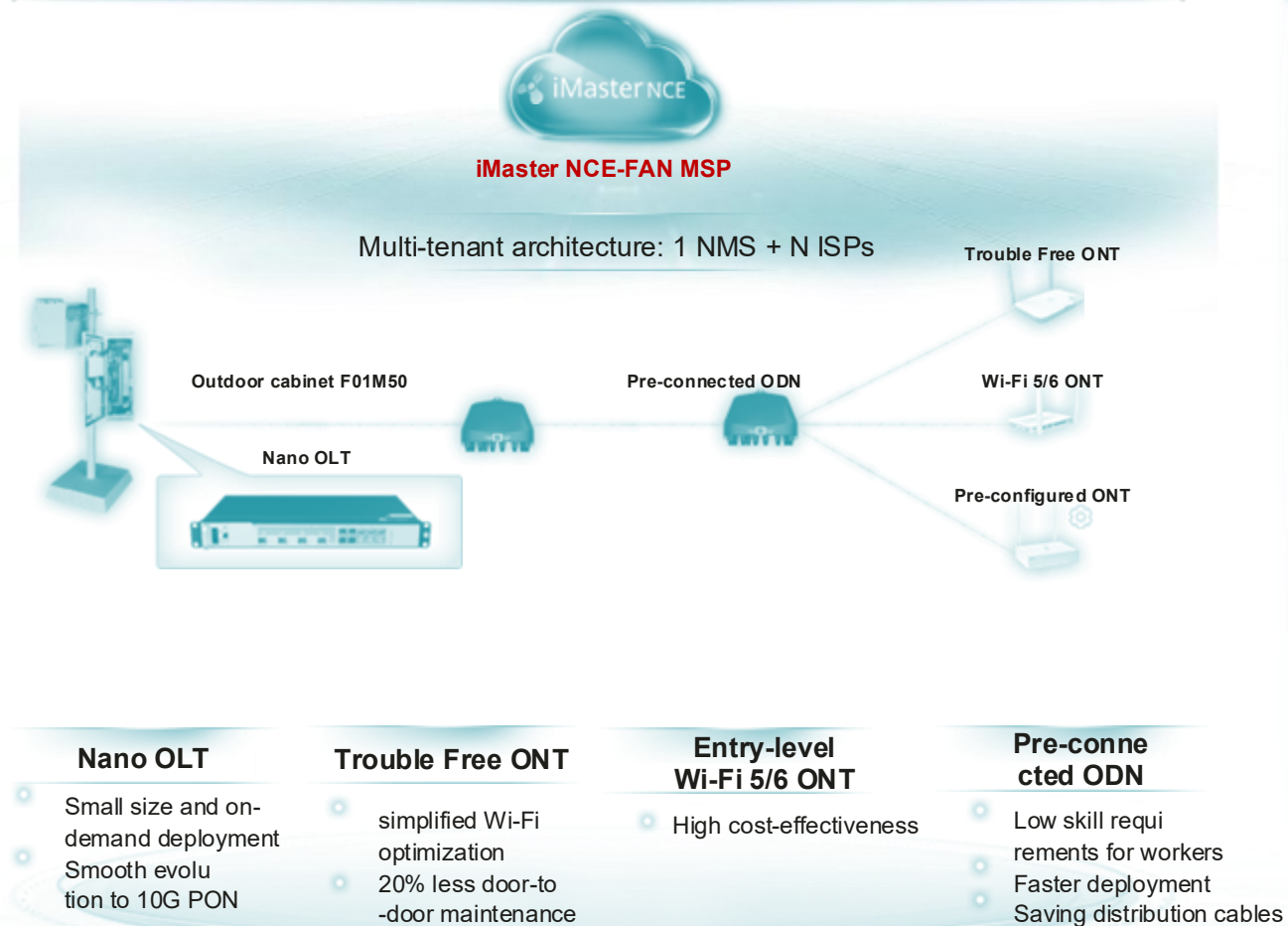


Numerous small ISPs to manage



Slow service provisioning

ISP-oriented FTTH solution



Benefits



Saves on investment



Overall service provisioning time: 20%



OPEX: 30%

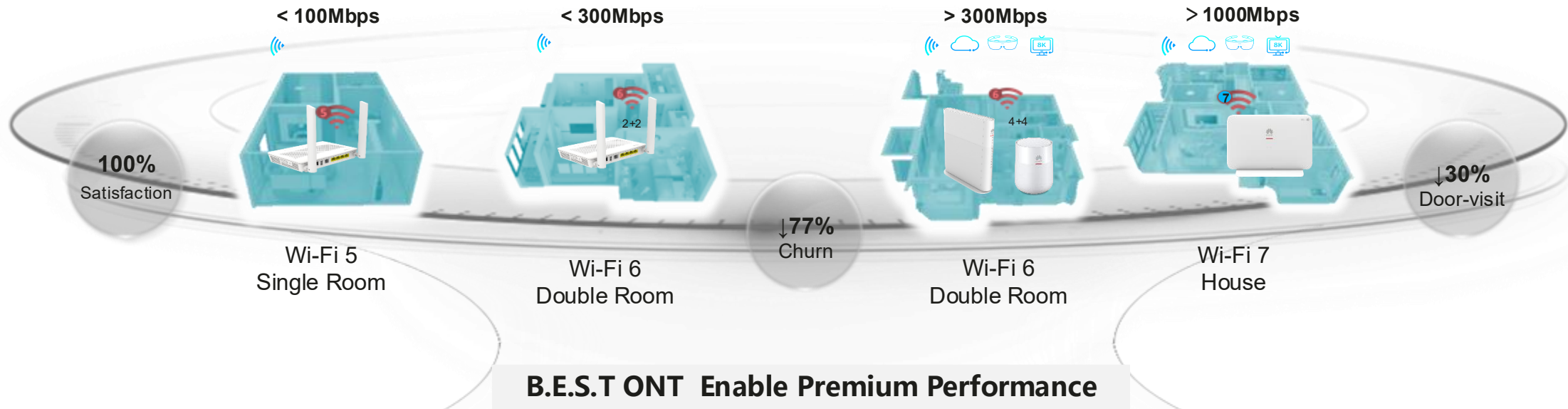


Partner ROI speed: 60%



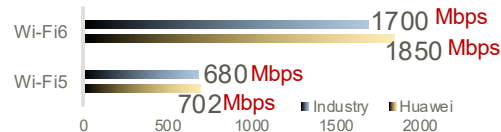
Service provisioning time for small ISPs: 70%

B.E.S.T ONT Bring Carrier Level Wi-Fi Experience to Every Home



Broader-Speed

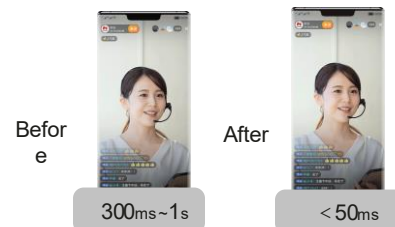
- Forwarding: CPU → NP turbo
- Backhaul: 5G/2.4G → 5G+2.4G by Link-turbo



Speed ↑ 10%

Extreme Experience

- 100+ App intelligent identification
- Wi-Fi dedicated channel acceleration



Latency ↓ 80%

Super-Wide Coverage

- Antenna: 5dBi → 7dBi
- EVM: ↑ 2dB by intelligent DPD



Coverage ↑ 30%

Trouble Free Management

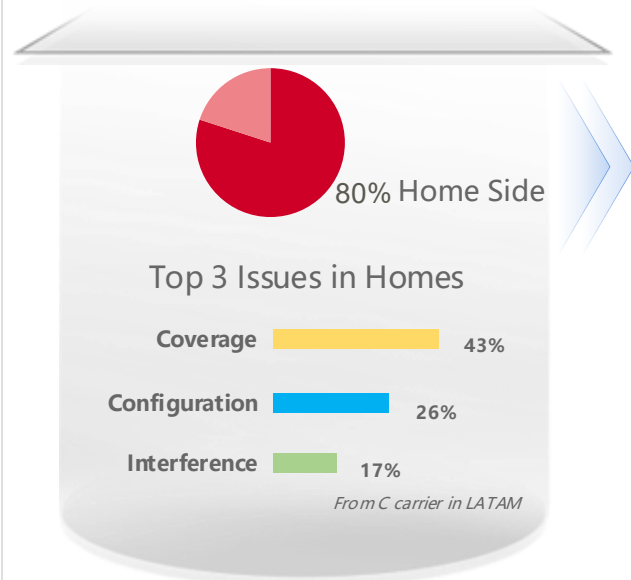
- QR Code Self-Service Troubleshooting: Configuration/Connection/Coverage /Load



Home Visit ↓ 20%

One less home visit: Trouble Free ONT Self-optimized

80% Complains from Home

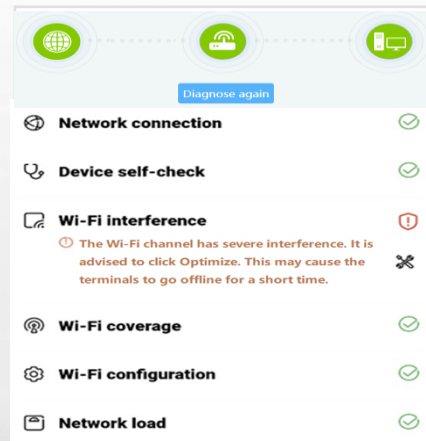


Trouble Free self-optimized

1.Scan QR Code



2.Choose option to optimize

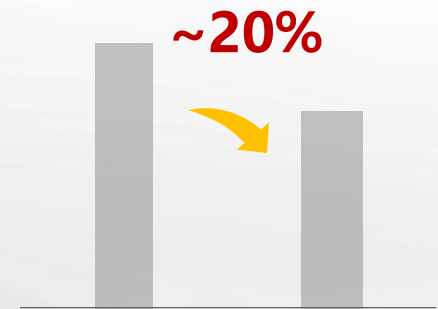


3.Solved issue in 5 seconds



Values

Home visits



Cases: Argentina, Mexico , Brazil, Indonesia

Configuration items

Enable 2.4 GHz and 5 GHz Wi-Fi etc.

Connectivity

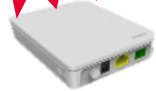
Link connectivity check and re-establishment

Weak coverage

Add an AP or modify the ONT configuration

Huawei OptiXstar Series ONT Products

Bridge ONT



EG8010Hv6-10
1GE



EG8040H6
4GE



EN8010Ts-20
1*10GE

Wi-Fi 5 ONT



EG8021V5
2GE
11ac 2*2 + 11n 2 x 2



EG8145V5
1POTS+4GE
11ac 2 x 2 + 11n 2 x 2



EG8041V5
2GE+2FE
11ac 2 x 2 + 11n 2 x 2

Wi-Fi 6 ONT



EG8041X6-10
4GE
11ax 2+2 dual-band



EG8145X6-10
1POTS+4GE+USB
11ax 2+2 dual-band



EG8245X6-8N-30
4*GE+2*POTS
Dual-band 11ax 4+4



EN8255X6s-8X
1*10GE+4*GE+2*PO
TS+1*USB+ 2.4G&5G
2.4GHz: 11ax 4x4
5GHz: 11ax 4x4

Wi-Fi 7 ONT



EG8145B7-50
4GE + 1POTS + USB
Dual-band 11be 2+2



EN8145B7Ns
1*2.5GE+3*GE+1*U
SB+1*POTS
Dual-band 11be 2+2

Four "ONE" Competitiveness

ONE Less Home Visit

- Trouble Free self-optimized ↓ **20%** home visit
- Premium Wi-Fi, ↓ **16%** Churn rate, ↓ **40%** Complaint

ONE More Wall Penetration

- 7 dbi Antenna: ↑ **16%+** coverage (applicable to Wi-Fi 5/6)
- Intelligent dual-beam: Coverage ↑ **10%+** (applicable to Wi-Fi 7)

ONE Level Bandwidth Upgraded

- NP Turbo hardware forwarding, throughput ↑ **20%**
- AI anti-interference algorithm, ↑ **10%+** performance

1 \$ More Revenue Earned

- 2.5GE LAN for **Dual 2.5Gbps HBB** (applicable to Wi-Fi 7)
- IOT coffer for **smart home security**(applicable to Wi-Fi 6/7)

MA5800(T) OLT Platform Support Smooth Evolution from GPON to 50GPON

Industry 1st
1T Intelligent OLT

MA5800(T)

G/10G/50G/200G PON

Day 1: GPON
Connection

FlexPon board + GPON SFP



100M~1G Package

Day 2: 10GPON
Experience

GPON SFP → 10GPON Combo SFP



1G~10G Package

20%↓ CAPEX 30%↑ ARPU

Day 3: 50GPON
Unleashed AI Productivity

50GPON Board + 50GPON Combo SFP



Compatible G/10G/50G ONT

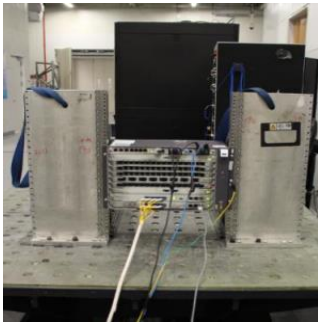
10G + Package

30%↓ CAPEX 40%↑ ARPU

Less on-site maintenance: OLT strictest test, Better Quality

OLT extreme Test

Drop test



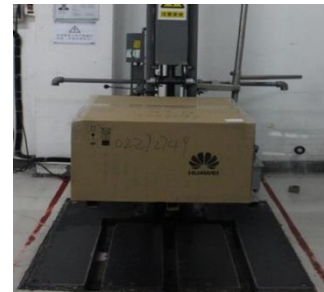
Climatic Test



Lightning voltage test



Vibration test



Large volume test (8K ONTs)

Traffic test



Pressure test



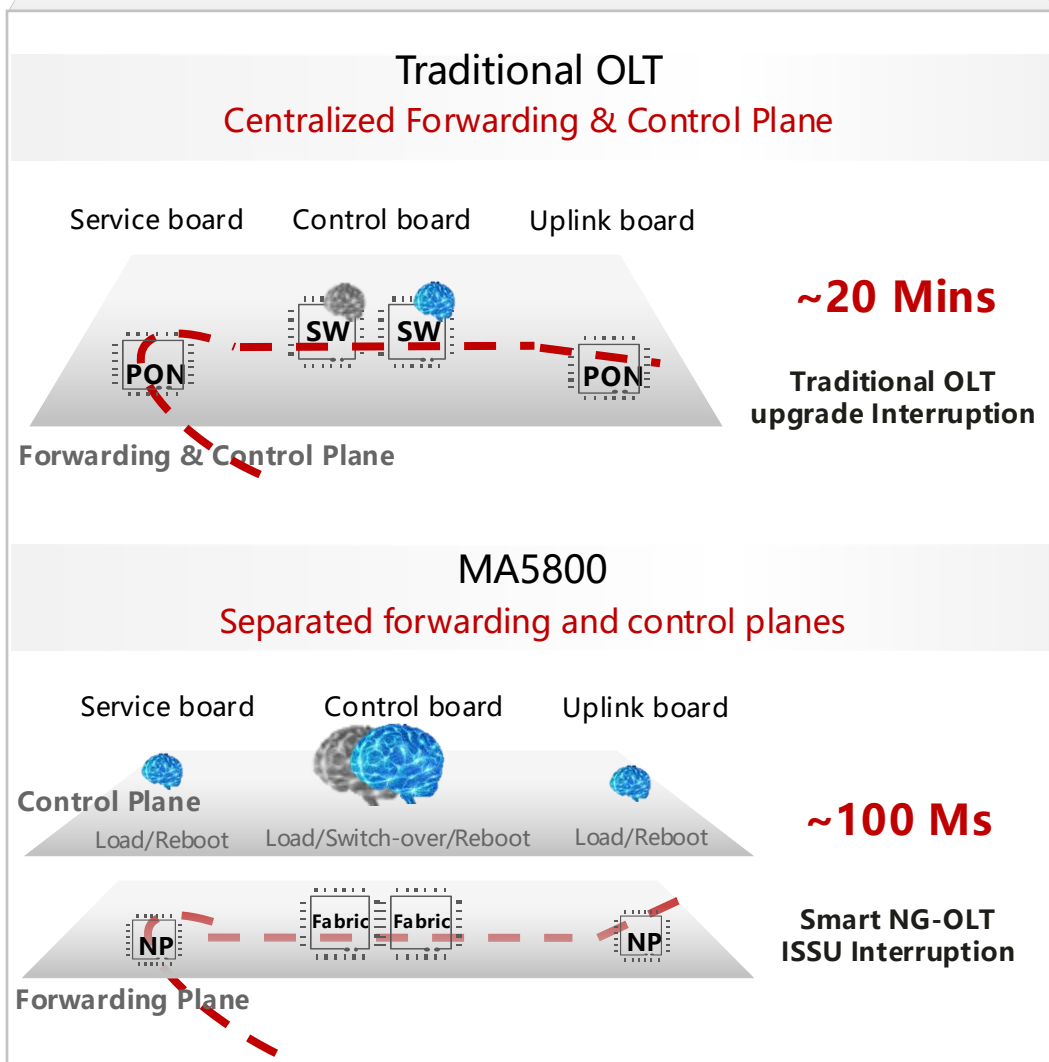
Stability test



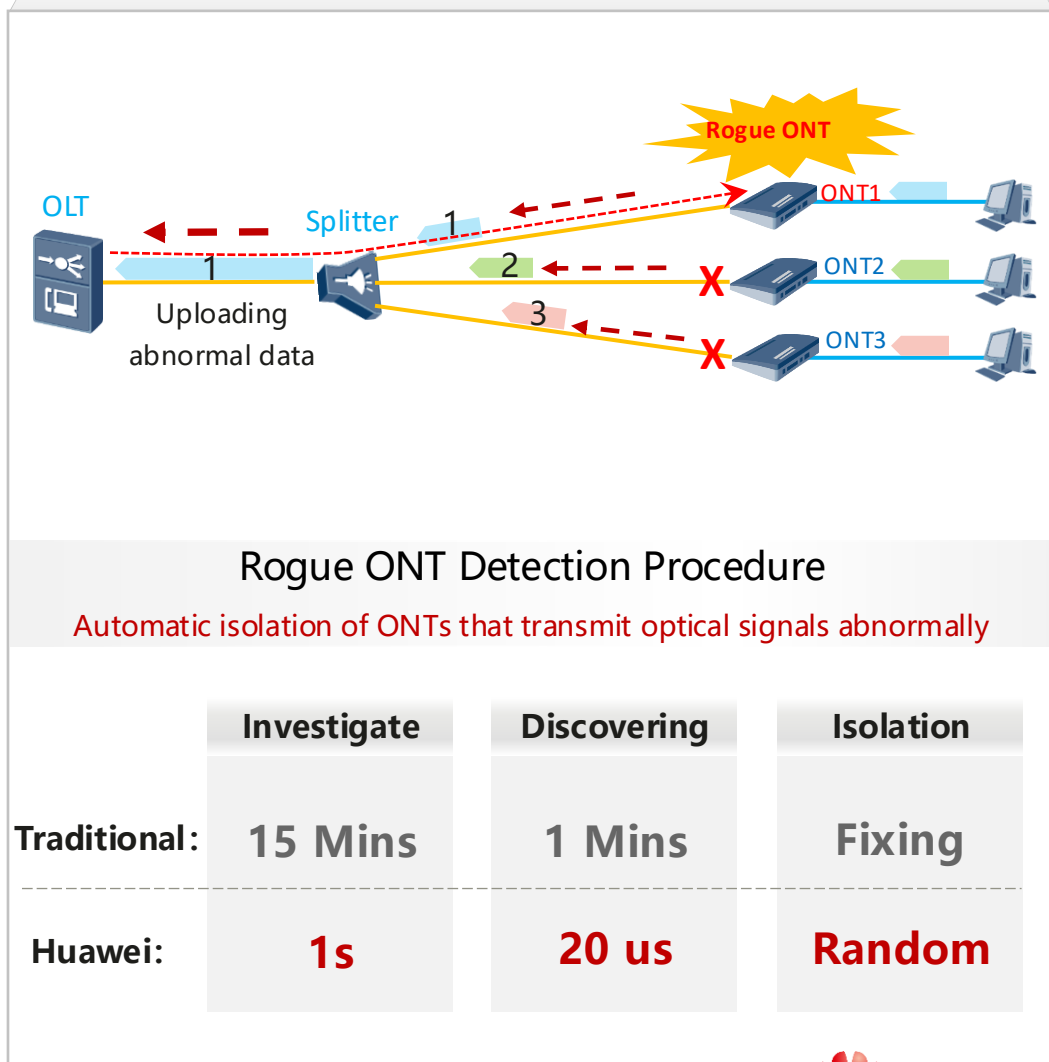
Strict Test Requirement Guarantee System Reliability >99.999%

Sustainable Development : OLT performance, Ensure business continuity

No Service Interruption in Upgrade



Intelligent Isolation of Rogue ONTs



Full-Scenario PON Matching the Requirements of HBB in Multiple Scenarios

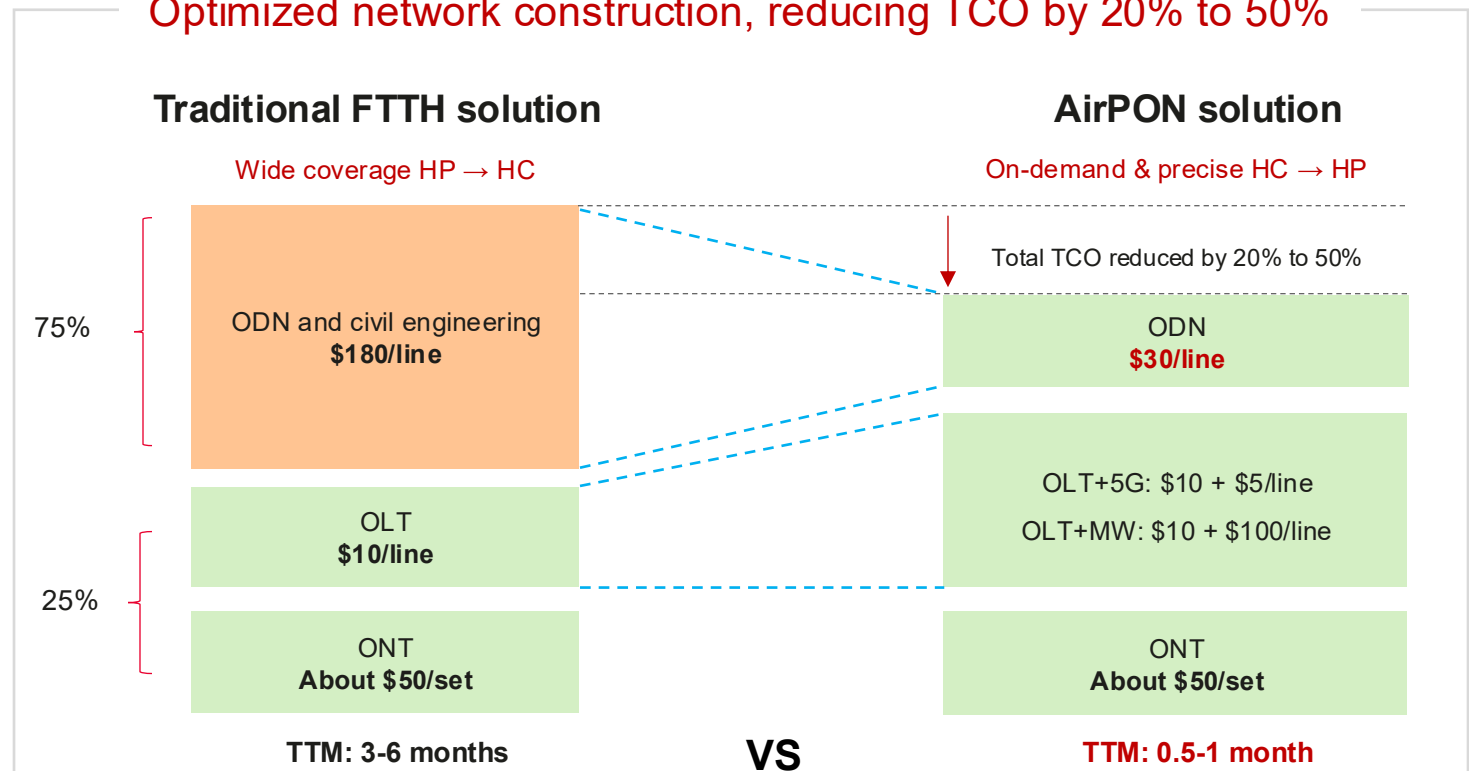
Scenarios with the number of users

Number of users	Device Type	Appearance/model
<2000 HC	2 U, 32 ports Mini OLT	 SmartAX MA5800-X2
<1000 HC	1 U 16-port Pizza OLT	 SmartAX MA5801-FL16
<500 HC	1 U 8-port Pizza OLT	 SmartAX MA5801-GP08/FL16
<200 HC	1 U, 4 ports Nano OLT	 SmartAX MA5801-FL04-H1

Multiple backhaul modes, reducing TCO

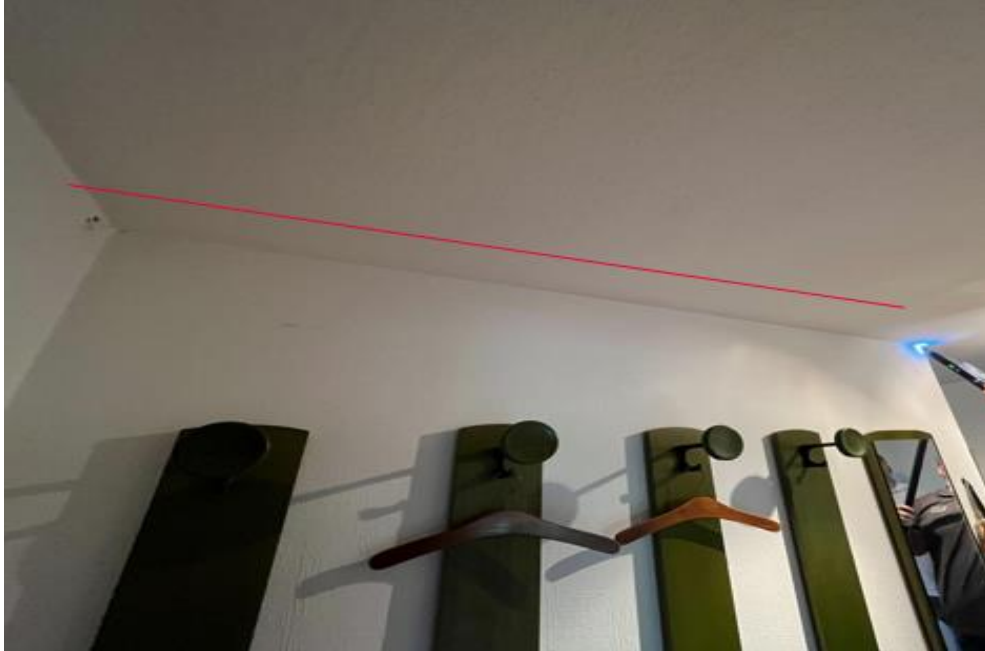


Optimized network construction, reducing TCO by 20% to 50%



Huawei Transparent Fiber bring Benefit for NE4/NE5 Deployment

Using the installation kit in NE5 ~ 15 Min



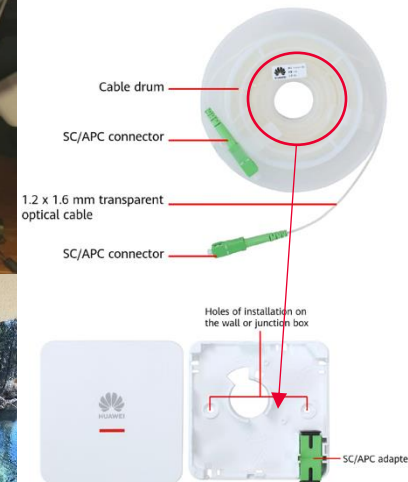
- Align with customer for the **route plan**
- **1m / min** fiber deployment speed in straight way
- Slowly moving when pass the corner and **press the corner point** until fully stick
- Extra adhesive are suggested for the corner

Fiber test ~ 1 Min



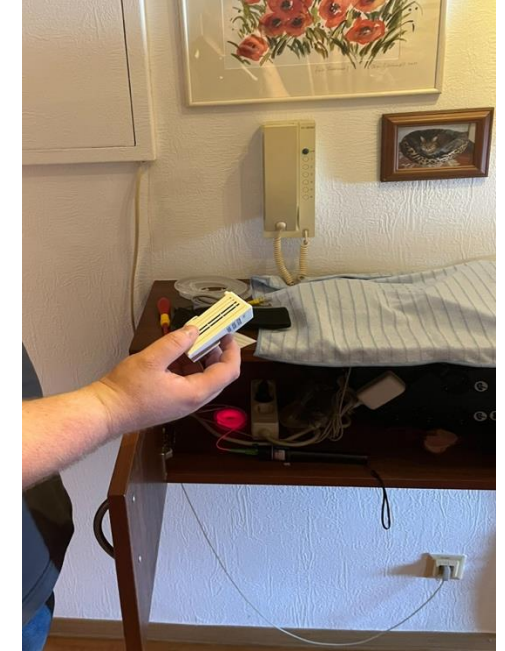
- Use **laser source pen** to check if there is broken on the fiber

ATB installation ~ 2 Min



- Install **ATB box** to store the Fiber Trommel

ONT connection ~ 1 Min



- Connect ONT device with transparent fiber

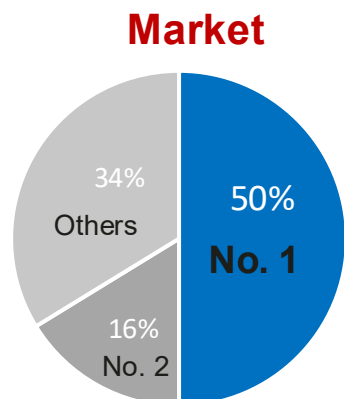
➤ Save **TCO 10%+**

➤ Shorten **TTM 50%+**

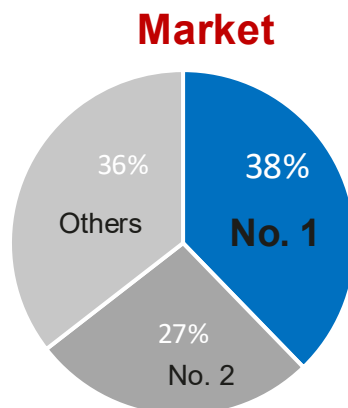
➤ the transparent Fiber make the End customer **more easy to accept** FTTH.

Huawei is Your Best Partner in FTTH Business Development

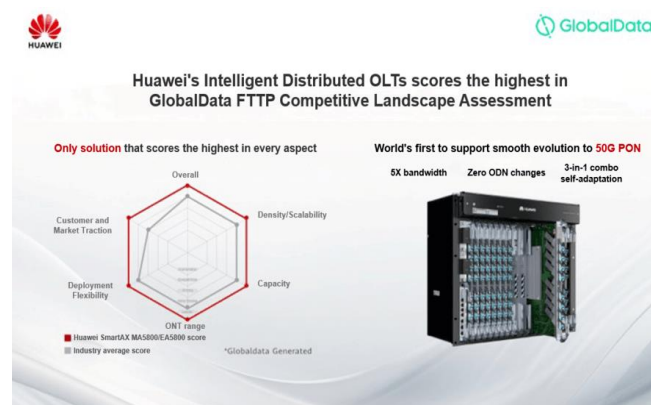
No.1 in OLT Market



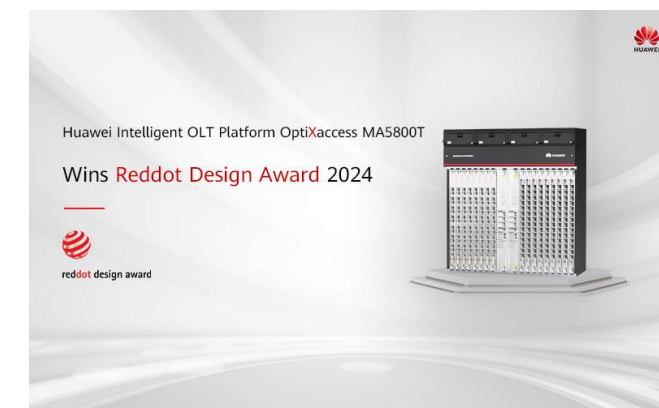
No.1 in ONT Market



Ranks No. 1 in OLT Competitiveness GlobalData 2024 MA5800T&MA5800



RedDot Design Award 2024 OptiXaccess MA5800T



50G PON: Totally 30K+ ports shipment by HW@2024

FTTR: Totally **40M+** FTTR Users by Huawei FTTR

Solution @ Mar. 2025

- **China:** **3M** Monthly Increase of FTTR Users, **40M** Total FTTR Users
- **Oversea:** **28** Carriers Launched FTTR Package, **200 K** Sets for Commercial Use

FTTx Innovation Award 2024 Lightwave Innovation Reviews



Leading In-Home Wi-Fi Service Network X 2024 iFTTR F50



Source: **OMDIA** **Signal AI**

Thank you.

Bring digital to every person, home and organization for a fully connected, intelligent world.

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