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4 June 2024, London

5G FWA: The wired-free era

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What is the state of the fixed wireless access (FWA) rollout so far?

- 4G FWA had low adoption rate. 5G has provided a new momentum by providing an upgraded experience and quality of service to the end users as speeds up to Gbps can be achieved. For example, 4G FWA offered speeds of 30 Mbps for fixed broadband and was a supplementary technology. 5G FWA can offer fixed broadband speeds from 100 Mbps – 1 Gbps and is considered a proved mainstream technology option. 5G Advanced is expected to further boost FWA to higher speeds.
- According to GSA in December 2023 there were 152 5G FWA Networks around the world. In European Union 47 telecom operators have already launched 5G FWA service. In Italy 5G FWA is deployed in synergy with Fiber while in Nordic countries operators are providing high end FWA experience with up to 1 Gbps service by leveraging the stimulus of developing fixed and mobile networks.
- The number of subscribers around the world is estimated to 15 million in the end of 2023 and projected to reach 22 million in the end of 2024 and 40 million in the end of 2026. 5G FWA has been very successful in Middle East with more than 2 million users.
- According to GSMA FWA Subscriptions are growing fast globally. 5G FWA adoption is estimated to reach 31% (as a % of total fixed broadband connections) in Austria, 22% in Australia, 18% in India, 18% in Germany and 17% in USA.
- There are different factors driving the 5G FWA momentum except from the technological capabilities of 5G that allow better speed, latency, QoS. These include, spectrum availability (including sub 6GHz and mmWave), the switch-off of copper networks, the wide availability of CPEs, national strategies to increase fixed broadband coverage and close digital divides and the fact that 5G FWA provides a cost-effective alternative to FTTH deployments in certain areas allowing a better balance between investments in infrastructures and return of investments for telecom operators.
- 5G FWA is considered by both experts and consumers as the most appealing 5G use case and is expected to be the second fastest growing broadband technology after FTTH/FTTB.

How do operators combine FWA with other fixed broadband technologies?

- Even though FTTH/FTTB technologies offer clear advantages if we really want to achieve our gigabit for all connectivity objectives in the most cost efficient way, FWA needs to be added in the access mix too.
- The fact that there is a certain economical threshold that allows or prohibits FTTH/FTTB deployment is well communicated and understood. Only densely populated areas can go Fiber without the use of subsidies. When the number of households per km² is below certain threshold 5G FWA achieves better return of investment.

What is the main selling point for FWA and which are the main use cases?

Price is the key point for selling FWA in particular for price-oriented users in areas where other fixed broadband technologies are in place. RedCAP 5G FWA technology is expected to bring a significant decrease on the CPE price to provide a more attractive business case.

Fast time to market and installation easiness are also important advantages of FWA.

There are three main use cases for FWA:

- FWA for high end users with requirement for high speed and guaranteed low latency but also higher price
- FWA for cost oriented, entry level users where CPE price is very important
- FWA for highly reliable SME connectivity with guaranteed downlink and uplink speed and high prices

FWA and 5G rollout can fuel each other. Wireless offered capacity can be provided in hybrid mode on both mobile and fixed broadband users despite the different profiles and requirements in both cases.

Regulation and policy for 5G FWA: Which are the main priorities

Our priorities should be:

- Spectrum availability and development friendly spectrum assignment procedures
- Simple licensing of radio equipment installation (optimized administrative procedures)
- Flexibility on infrastructure sharing initiatives for reducing deployment times, costs and environmental nuisance (including access to passive infrastructure and rights of way)
- Monitoring antenna output power levels is a regulatory 'must'

In general, to speed up the deployment of telecom networks we need to create environment to incentivize investments including the use of public subsidies (in a technology neutral way) in areas where market failures exist but also to address the demand side in order to make networks accessible (competitively priced) for the end users but also financially sustainable.

New frequency bands: what possibilities would it unlock?

In general, 5G radically changes radio access planning and architecture - both in terms of embracing the mmWave band use, but also in terms of moving away from the macro-cell base stations to mmWave enabled microcells/picocells that will be deployed densely within residential areas and will enable operating very low power RANs using 'green' cells/base stations, which could even operate on renewable energy, collected at the point of use - with the help of a small power storage system.

- High Speed mmWave FWA becomes mature and can bring experience similar to fiber
- mmWave ecosystem is ready: mainstream chipsets and a large number of low prices CPEs are available
- Globally there are more than 20 mmWave FWA networks for high-speed services