

Industry Insights: By the Data

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Introduction



As CEO and co-founder of Aterlo Networks and Preseem, my passion is helping ISPs understand and improve subscriber Quality of Experience (QoE) on their networks, while uncovering new opportunities to help them thrive and scale.

Preseem is a QoE platform for ISPs:

- Deployed in 400+ multi-vendor Fixed Wireless networks
- Metrics include plan speeds, latency & bandwidth/usage

*All metrics in this presentation are available online in our annual **Fixed Wireless Report**



**Can fixed wireless
networks deliver a good
Quality of Experience?**



Quality of Experience

QoE is all about how the subscriber *perceives* your service. Poor QoE generally results in “slow internet” complaints. Two main aspects of Quality of Experience are:

- **Bandwidth** - How many cars can arrive simultaneously?
 - Especially important for downloads and apps like streaming video
 - How much do you really need?
- **Latency** - How long does it take for one car to arrive?
 - Critical for applications like VoIP, gaming and browsing



Bandwidth



Daily Usage

Daily Download Usage

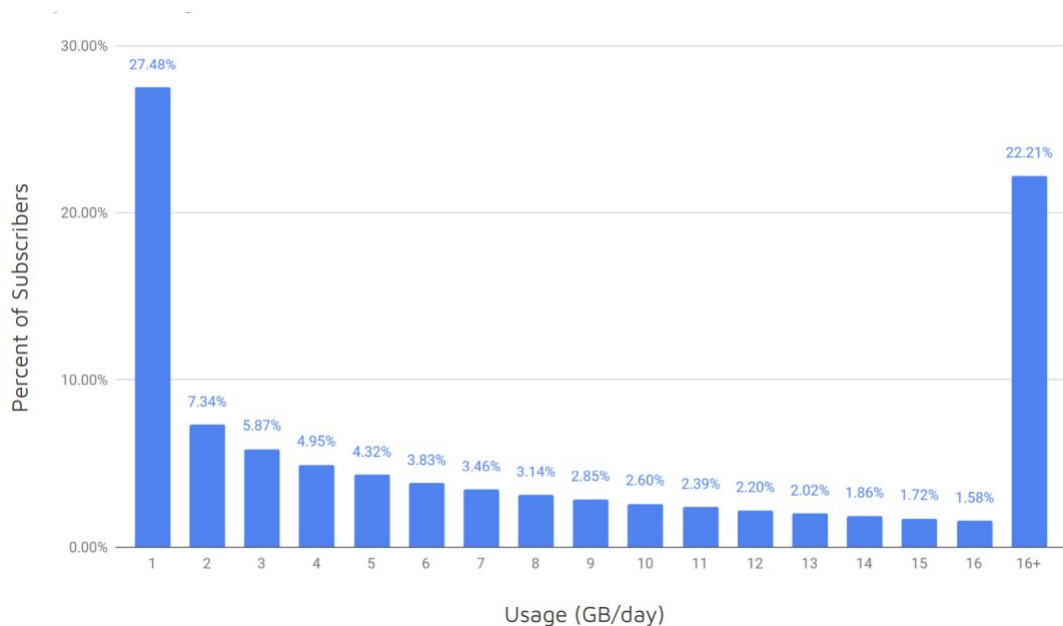
The **average** subscriber uses **10.6GB** per day

27% of subscribers use **less than 1GB** per day.

22% use **more than 16GB** per day.

Source: Fixed Wireless Network Report 2022

Daily Download Usage

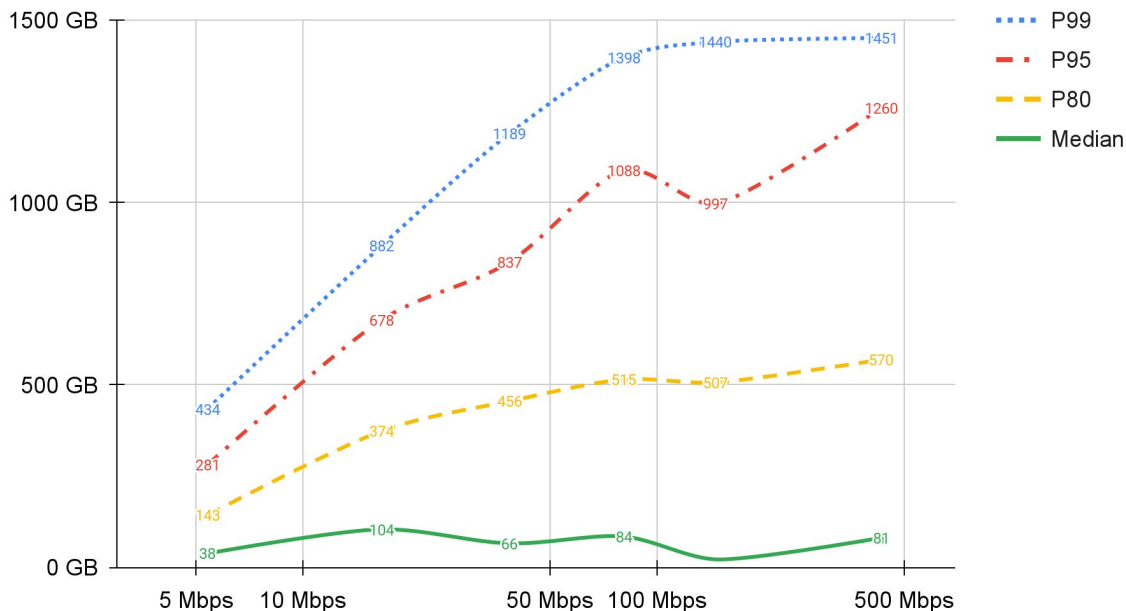


Cumulative Bandwidth

Subscriber Monthly Usage by Plan Speed

Most subscribers don't really use more data as their plan speed increases.

Plan Speed vs. Monthly Download Usage



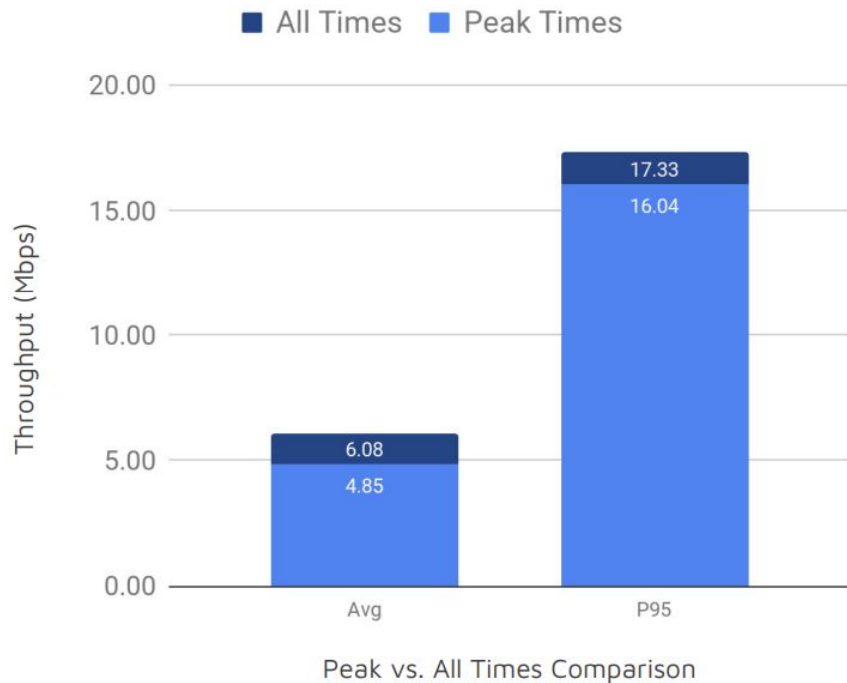
Source: Fixed Wireless Network Report 2022



Instantaneous Bandwidth

Subscriber Download Throughput: Peak vs. All Times

Download throughput doesn't degrade significantly during the busiest times of the day (peak).



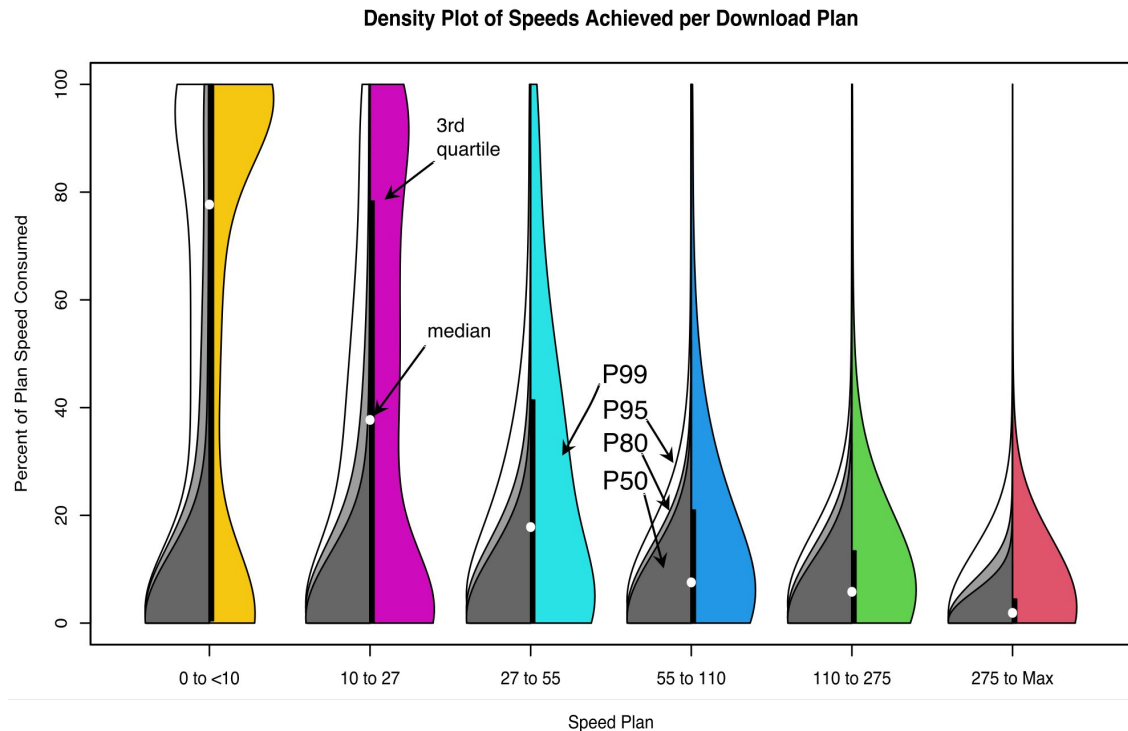
Source: Fixed Wireless Network Report 2022



Instantaneous Bandwidth

Speeds Attained by Speed Plan

Most user needs can be met in plans below 100 Mbps.



Source: Fixed Wireless Network Report 2022

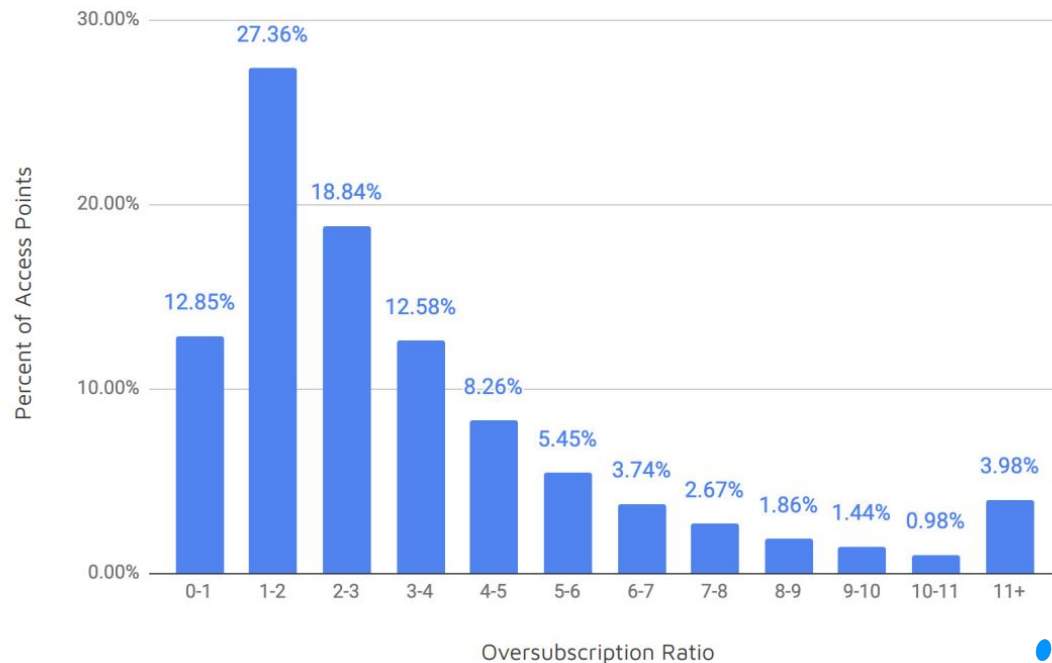


Access Point Oversubscription

Access Points by Oversubscription Ratio

59% of APs are less than 3x oversubscribed.

Access Points by Oversubscription Ratio



Source: Fixed Wireless Network Report 2022

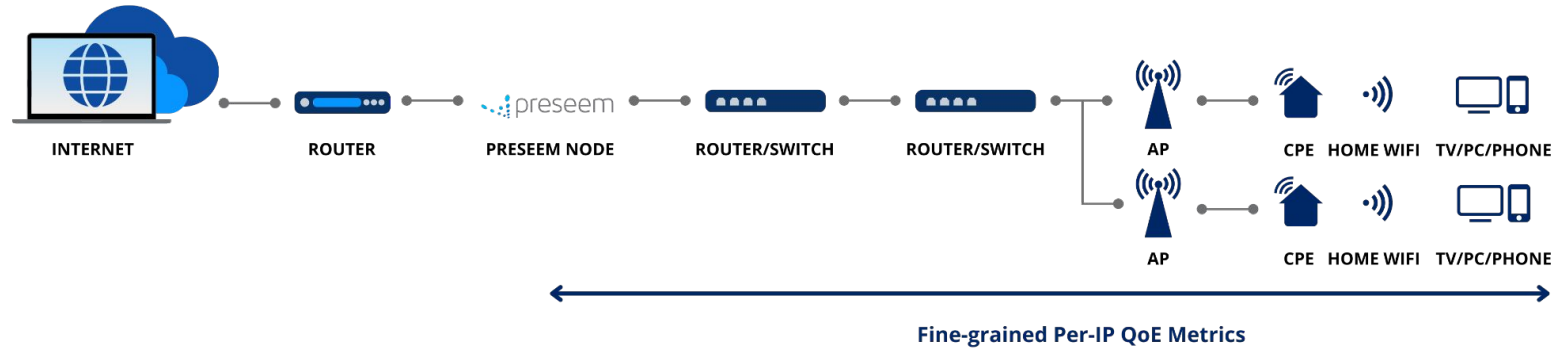


Latency



Latency

Latency is measured from the actual traffic from the network core all the way to the end user device (phone, TV, etc.) and back again.



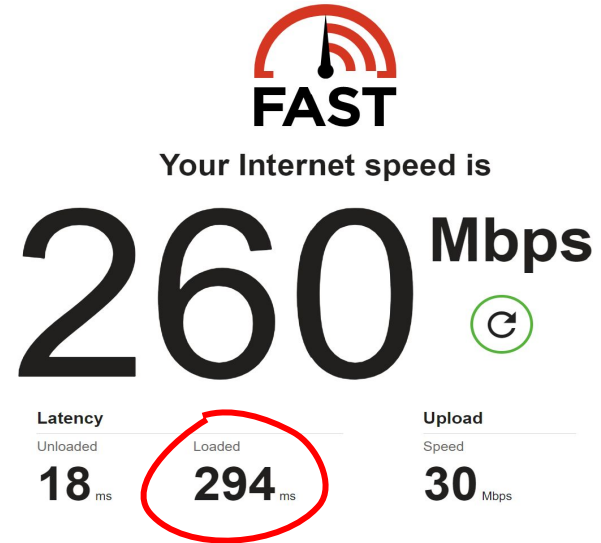
This is fundamentally different from ICMP ping-based latency measurements because it measures true end-to-end latency, including the latency in the subscriber's home.



Latency

You need $< 150\text{ms}$ to have a high quality VoIP call. It's best to keep this latency under 100ms , or at maximum 125ms .

Different speed test services are now showing "loaded latency." This is my home "big cable co" connection. Don't be like big cable co.



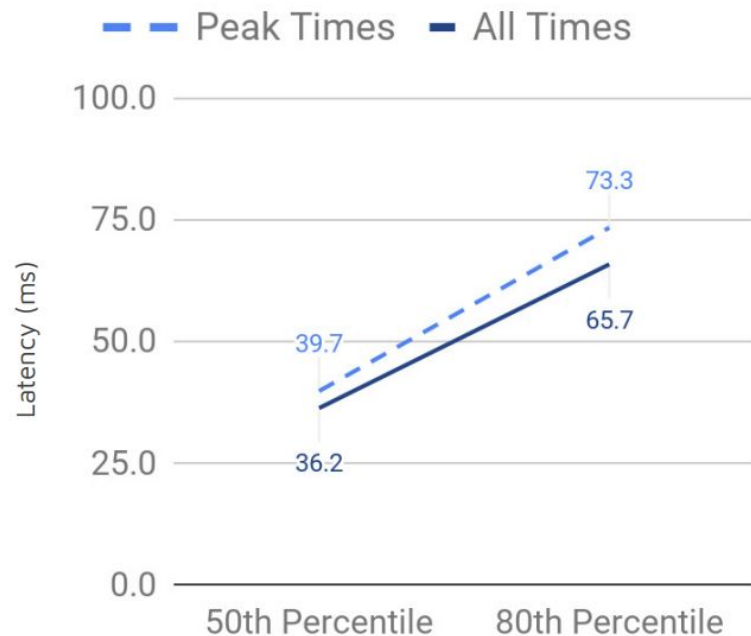
Latency

Subscriber Latency

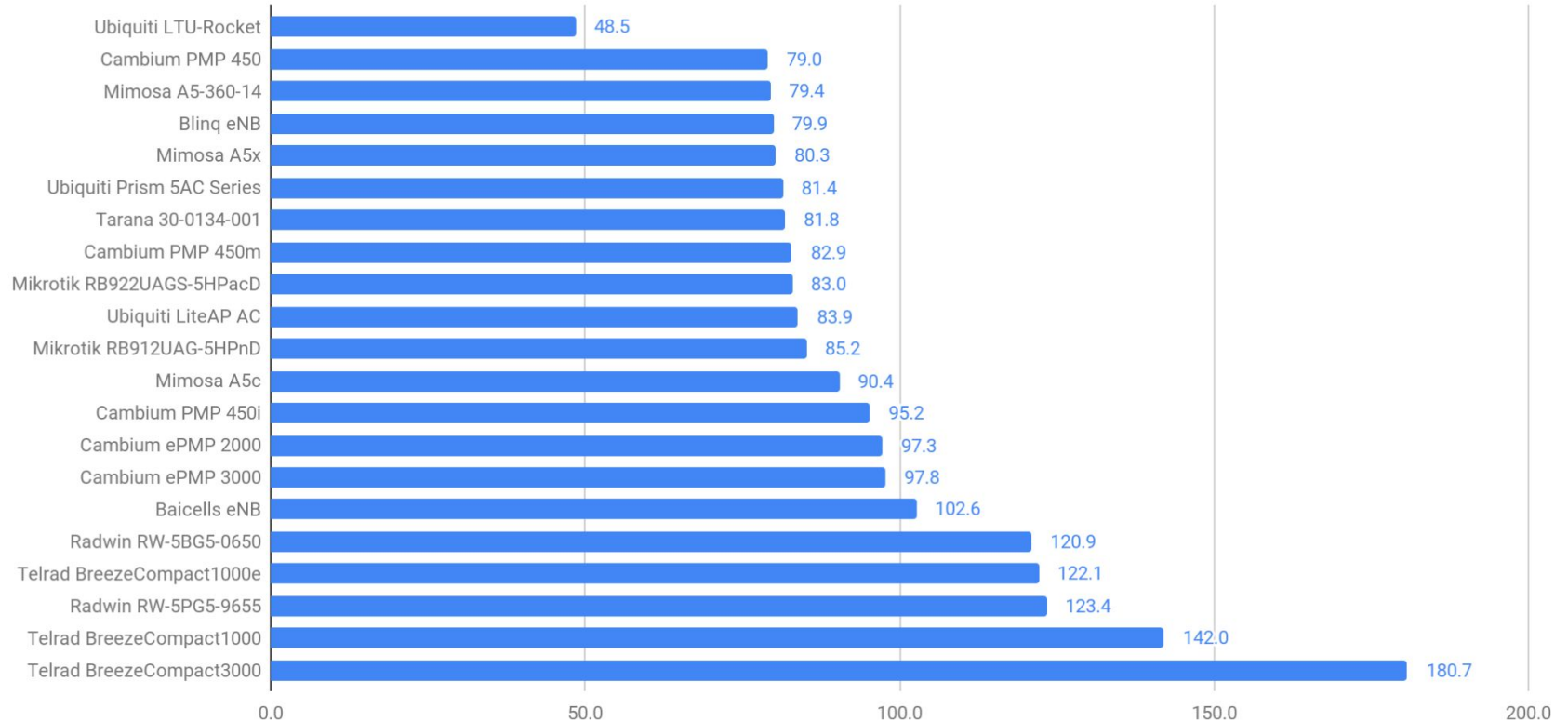
The latency difference between peak and off-peak times in networks where Preseem is deployed is minimal.

Source: Fixed Wireless Network Report 2022

Subscriber Latency



P80 Latency by Access Point Model During Peak



AP Latency Under Load

80th Percentile Latency (ms)

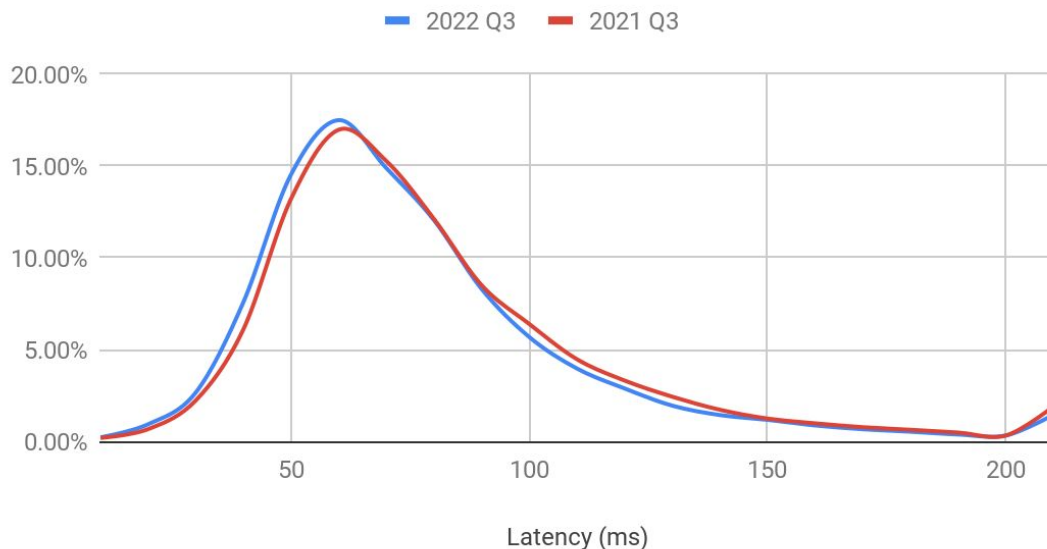


Latency

Operator and Home Network Latency

In general, fixed wireless networks are able to support VoIP calls.

2022 Q3 vs 2021 Q3



Source: Fixed Wireless Network Report 2022



Executive Summary

Preseem's annual Fixed Wireless Network Report uses our extensive data set to provide a unique view into fixed wireless networks across providers and different kinds of equipment.

Key insights from this year's edition include:



6 Mbps When Active

The average fixed wireless subscriber uses around 6 Mbps when active (1Y 17%↑)



Speed Plans

Speed plans over 100 Mbps often sit idle



Data Usage

The average fixed wireless subscriber uses 10.6 GB of data per day, for a total of 329 GB per month (1Y 20%↑)



Oversubscription Rate

Over 59% of access points are less than 3x oversubscribed



Consumer Habits

Many users don't consume more data as their speed plan increases



Improved Latency

Latency has improved year over year, indicating that operators are keeping up with consumer demand

**Yes! Fixed wireless
networks can deliver a
good Quality of Experience!**



Questions?

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