



# Broadband Insights Report (OVBI)

3Q21

# Introduction

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Among the many broadband trends that have surfaced during the past two years, one of the more important has been the increasing number of subscribers pushing against the upper limits of their speed tiers. This “speed clipping” – defined as subscribers exceeding 80% of provisioned speeds – occurs when consumers’ broadband packages and consumption become misaligned; it can result in subscriber dissatisfaction and increased cost and manpower burdens on providers’ customer care centers.

The 3Q 2021 edition of the OpenVault Broadband Insights Report (OVBI) provides new visibility into the growth of speed clipping throughout the pandemic. Using data from numerous providers, OpenVault has found speed clipping has increased significantly over the past 18 months. For one midsize broadband provider, both downstream (52.6%) and upstream (48.8%) speed clipping increased approximately by half between May of 2020 and September of 2021. More importantly, “prime time” downstream speed clipping at 9 PM in September 2021 was nearly 400% of what it was in May 2020.

As with all editions of the OpenVault Broadband Insights Report (OVBI), this 3Q21 version uses data points from millions of individual broadband subscribers, aggregated from OpenVault’s software-as-a-service (SaaS) technology solutions to pinpoint usage patterns as well as the differences between two key categories: subscribers on flat-rate billing (FRB) plans that offer unlimited data usage and those on usage-based billing (UBB) plans, on which subscribers are billed based on their broadband consumption.

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**One implication of the faster rate of growth for bandwidth consumption exhibited over the past couple of years can be defined as speed clipping, with important implications for the customer experience and broadband ARPU.**

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# Key findings from the 3Q21 OVBI include:



## Usage

The monthly weighted average data consumed by subscribers in 3Q21 was 434.9 GB, up 13% from 3Q20.



## Key ARPU Insight

37% of subscribers in the 100 Mbps speed tier are prime candidates for higher ARPU speed upgrades.



## Power Users

The percentage of subscribers who are extreme power users of 2 TB or more was 1.43% in 3Q21, up 46% from 0.98% in 2020.



## Key Bandwidth Usage Insight

Annual growth of median usage (21%) continues to outpace average usage growth (13%) – 61% higher this quarter.



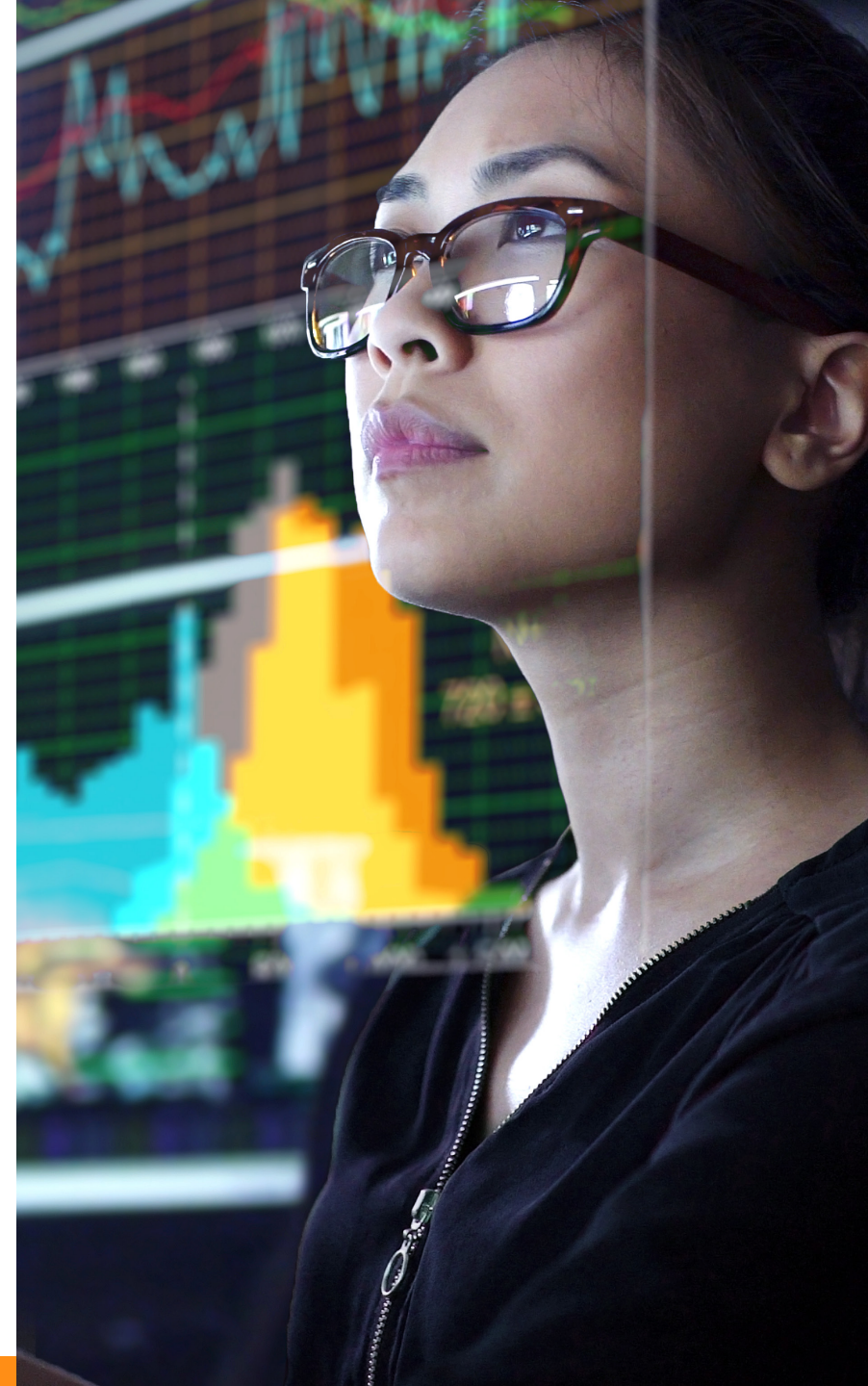
## Speed Tiers

The gigabit speed tier adoption continued its accelerated pace, reaching 11.4% of subscribers, double what it was in the same period a year ago.



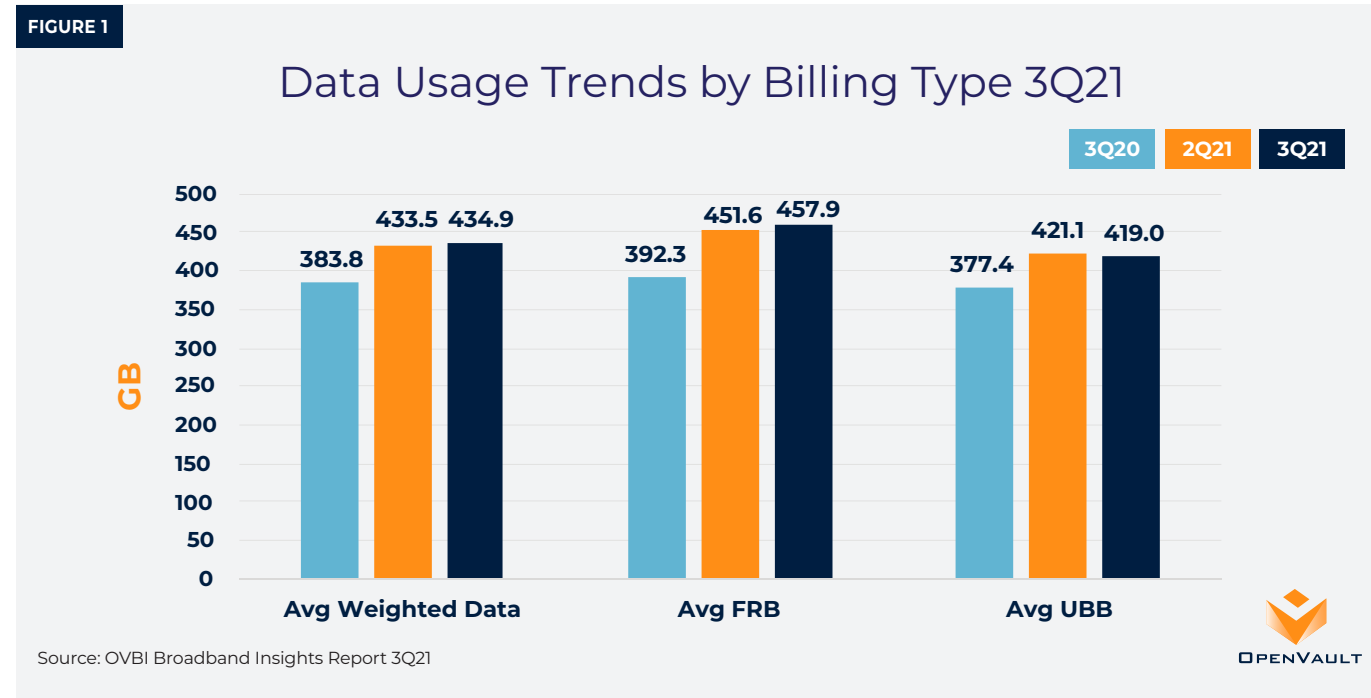
## Key UBB vs FRB Insight

At 458 GB of total usage in 3Q21, FRB subscribers' annual growth in data consumption outpaced that of UBB subscribers by 52%.



# 3Q21 Broadband Usage Key Findings

The following broadband usage trends were observed in 3Q21.



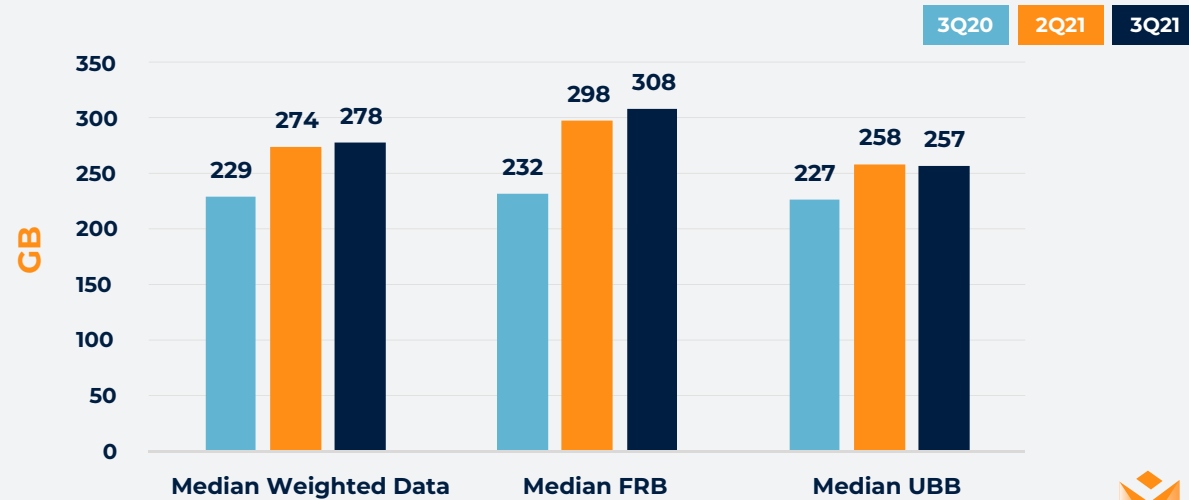
- The monthly weighted average data consumed by subscribers in 3Q21 was 434.9 GB, up 13% from 3Q20's weighted average of 383.8 GB, and relatively flat sequentially (quarter-over-quarter) from 2Q21. This highlights the continued trend of elevated usage, given 13% annual growth over already pandemic-era high usage growth in 3Q20. Weighted average data usage represents data usage trends for both flat-rate billing (FRB) and usage-based billing (UBB) subscribers.
- Annual upstream (12%) and downstream (13%) growth were relatively equal in 3Q21.
- At 458 GB of total usage in 3Q21, FRB-based subscribers' annual growth in data consumption outpaced FRB subscribers by 52%.

Year-over-year average monthly usage growth of 13% in 3Q21 versus 3Q20 confirms that there is no going back to pre-pandemic levels.



FIGURE 2

## Median Usage Trends by Billing Type 3Q21



Source: OVBI Broadband Insights Report 3Q21



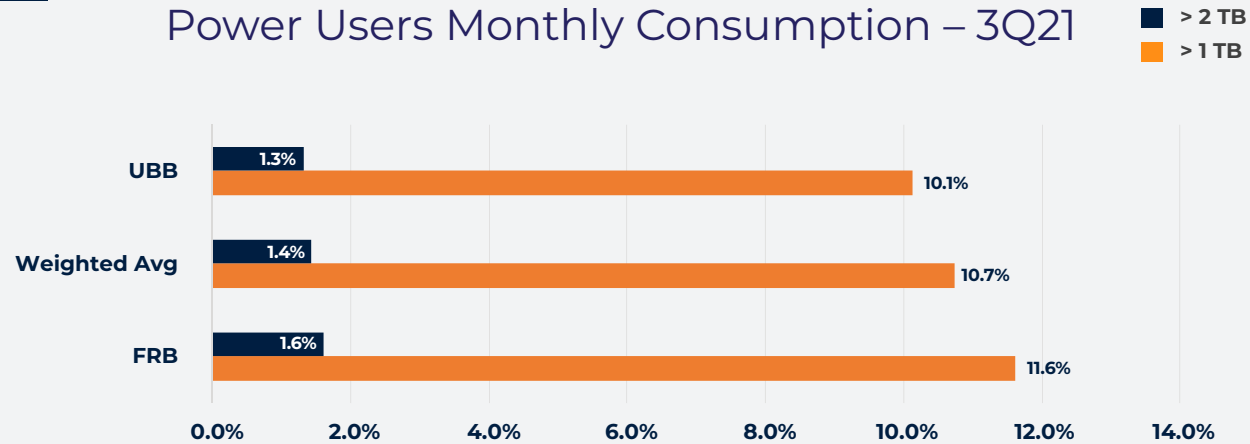
- The monthly weighted median usage in 3Q21 was 278 GB, up 21% from 229 GB a year ago, and up 1% sequentially from 2Q21's median of 274 GB.
- Year-over-year median usage growth (21%) exceeded average usage growth (13%) by 61% in 3Q21, indicating a continued strong pull for growing consumption by a broad swath of subscribers versus just a few heavy power users.
- Year-over-year median usage growth (32%) for FRB providers was roughly 146% higher than that of UBB providers (13%).

Year-over-year median usage growth for FRB-based networks was more than double that of UBB-based networks in 3Q21, indicating widespread data consumption growth among subscribers on FRB networks with unlimited usage plans.



FIGURE 3

## Power Users Monthly Consumption – 3Q21



Source: OVBI Broadband Insights Report 3Q21

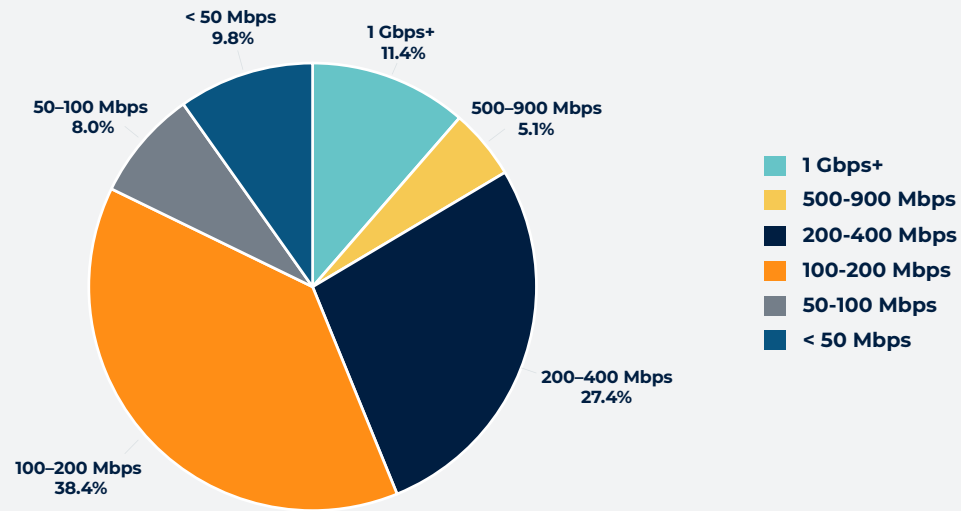


- At 10.7%, the percentage of 1 TB power users grew nearly 22% from 8.8% in 3Q20.
- The percentage of subscribers who are extreme power users of 2 TB or more registered at just over 1.43% in 3Q21, up 46% from just under 0.98% in 2020, but down 4% sequentially from 2Q21 (1.49%).
- The 2 TB power user category is growing much faster on an annual basis on FRB-based networks, with 53% growth in 3Q21, compared to 39% growth among UBB-based networks.



FIGURE 4

## Provisioned Speed Tiers – 3Q21



Source: OVBI Broadband Insights Report 3Q21



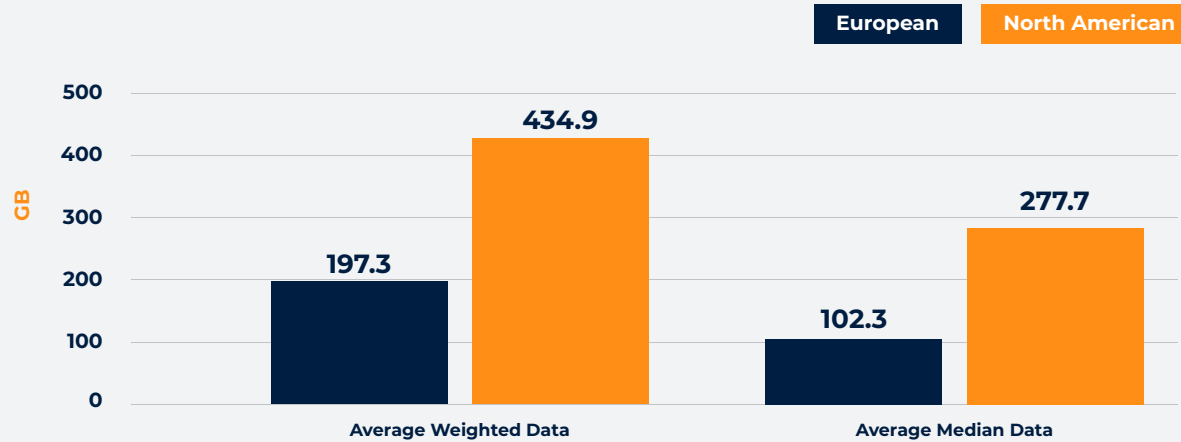
- The gigabit subscriber tier reached 11.4% of all subscribers effectively doubling from 5.72% in 2020.
- Gigabit speed adoption is growing even faster among UBB subscribers, up 106%, to 12.6% of total UBB subscribers from a year ago.
- Speed tiers of less than 100 Mbps are in decline, with less than half of subscribers in that speed category from a year ago.

One lasting legacy of the pandemic is the acceleration of the gigabit speed tier. There are now 4.5x more gigabit subscribers today than in pre-pandemic 3Q19.



FIGURE 5

## European vs. North American Data Usage - 3Q21



Source: OVBI Broadband Insights Report 3Q21



- European average data usage (197.3 GB) grew by nearly 4% sequentially from 2Q21 (190 GB).
- North American median data usage (277.7 GB) is roughly 2.7x that of European median data usage (102.3 GB).





# Implications of Speed Clipping

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OpenVault has identified speed clipping as a trend that service providers should track, so that they proactively can identify performance issues and help subscribers choose the higher-speed broadband packages that provide better experiences.

Speed clipping occurs as subscribers encroach on their upstream and downstream speed tier limits, due in large part to them consuming so much more data. Even though speed tier adoption is growing at the high end and shrinking at the low end, the majority of subscribers still remain in speed tier packages of 200 Mbps or slower. As those subscribers demand high-bandwidth applications like streaming, gaming, and video conferencing, often simultaneously, they push against the performance limits of those slower speed tiers.

OpenVault has identified 80% of provisioned speed as the threshold at which subscriber experiences can begin to be negatively impacted. In other words, as a subscriber reaches 80% or more of their provisioned speed, the likelihood that they will encounter degradation and a poor customer experience increases. The vicious cycle of speed clipping is occurring because more subscribers are using popular high-bandwidth applications without adjusting their speed tiers to match their usage.

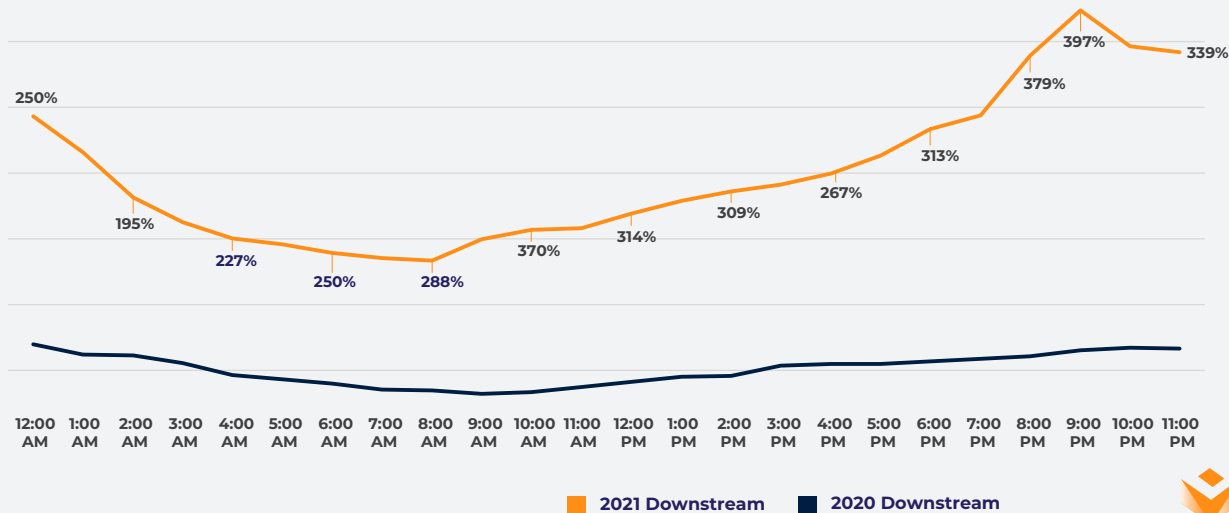
A poor customer experience from speed clipping often leads to calls to customer care and network troubleshooting that are unnecessary. In most cases there is nothing wrong with the network, but without visibility into this issue it may take the expense of a truck roll to determine that the problem is not network-based. When the real issue is speed clipping, the solution is upgrading that subscriber to a faster speed tier, on which they are less likely to routinely reach the 80% threshold.



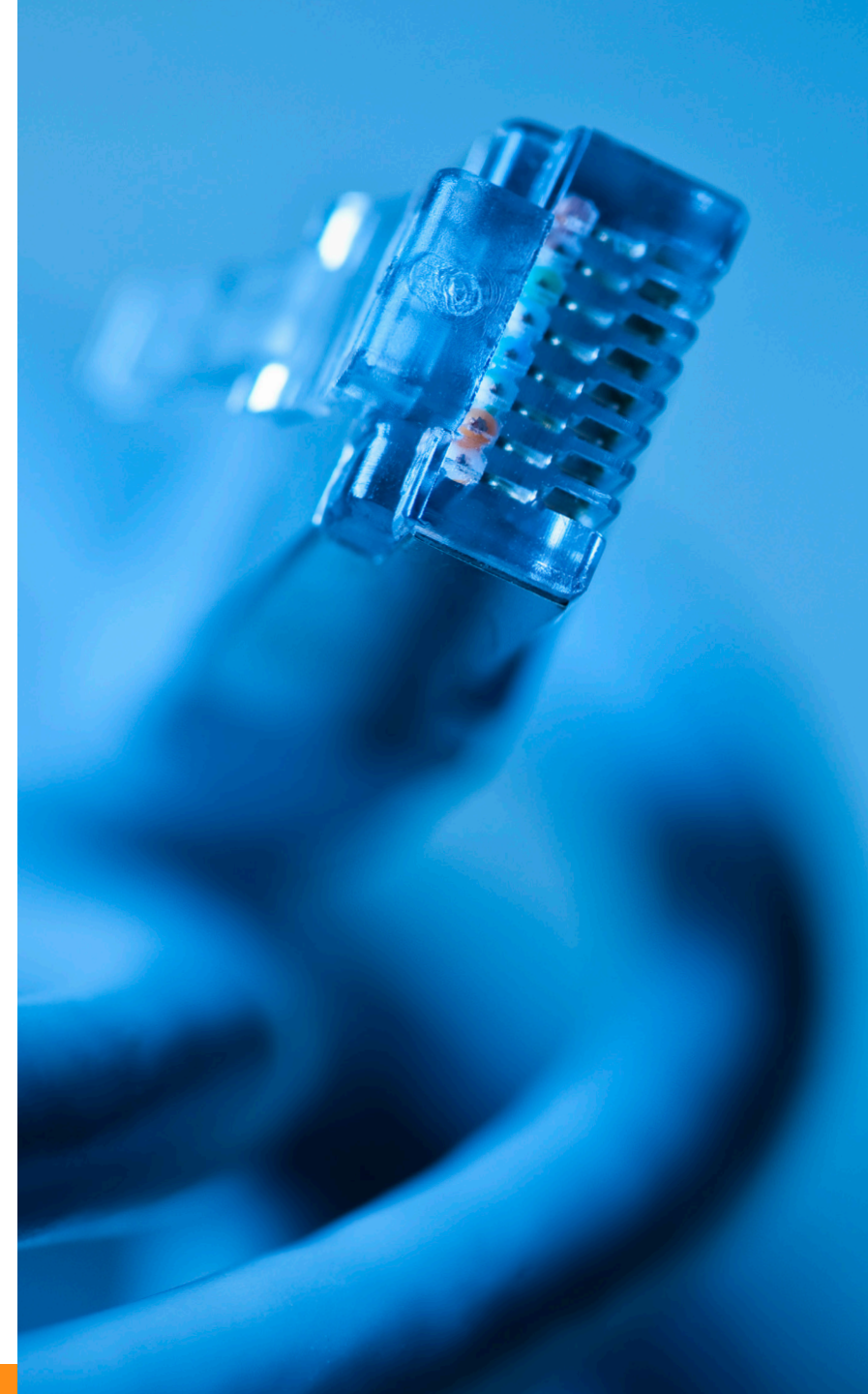
Analysis of an OpenVault client's network illustrates this issue. Figure 6 highlights the percentage growth between May 2020 and September 2021 of subscribers on this network who routinely hit the 80% threshold for downstream bandwidth, by hour of the day. As stated earlier, 52.6% of subscribers routinely reached the 80% threshold for downstream bandwidth during this time period. Peak time for this behavior was between 6:00 p.m. and 11:00 p.m. In September 2021, the percentage of subscribers exceeding 80% of their downstream provisioned speed at 9:00 p.m. was nearly 400% of the May 2020 percentage.

FIGURE 6

### % Growth of Speed Clipping — Downstream 2020 - 2021



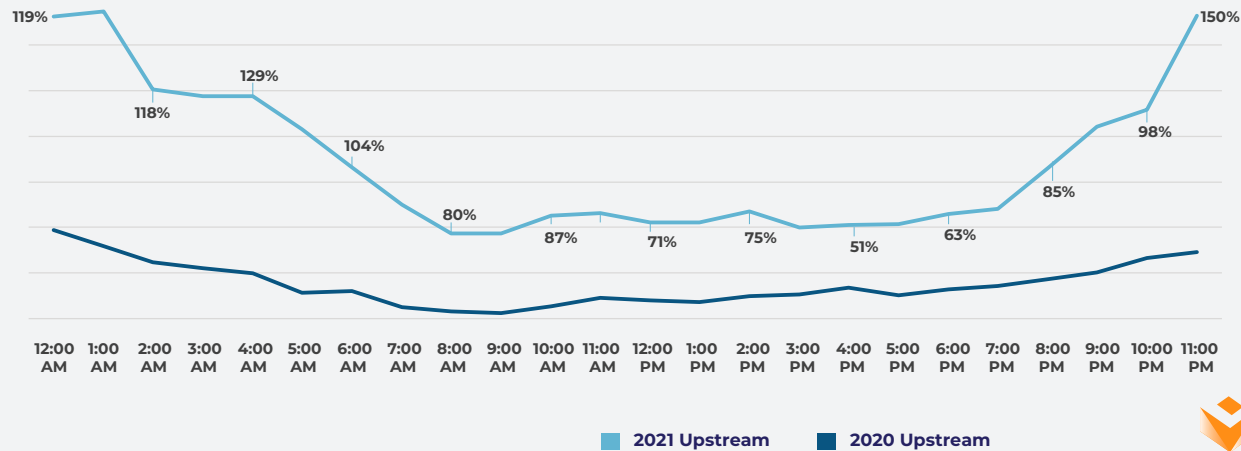
Source: OVBI Broadband Insights Report 3Q21



Analysis of upstream traffic yields similar results. Between May 2020 and September 2021 48.8% of subscribers on this network reached the 80% threshold for upstream bandwidth; Figure 7 shows an hour-by-hour comparison of the two time periods.

**FIGURE 7**

### % Growth of Speed Clipping — Upstream 2020 - 2021



Source: OVBI Broadband Insights Report 3Q21



The 11:00 p.m. hour is when upstream speed clipping hit its peak: The percentage of subscribers exceeding 80% of their upstream provisioned speed was 150% higher in September 2021 than it was in May 2020. Upstream speed clipping is of particular note for those providers who are architecturally constrained in their ability to increase upstream network speeds.

By effectively identifying speed clipping subscribers, network operators can better target them with speed upgrade offers that ultimately provide the consumer with a better experience. The results can improve customer satisfaction and net promoter scores (NPS), reduce operational expenses, and increase ARPU.

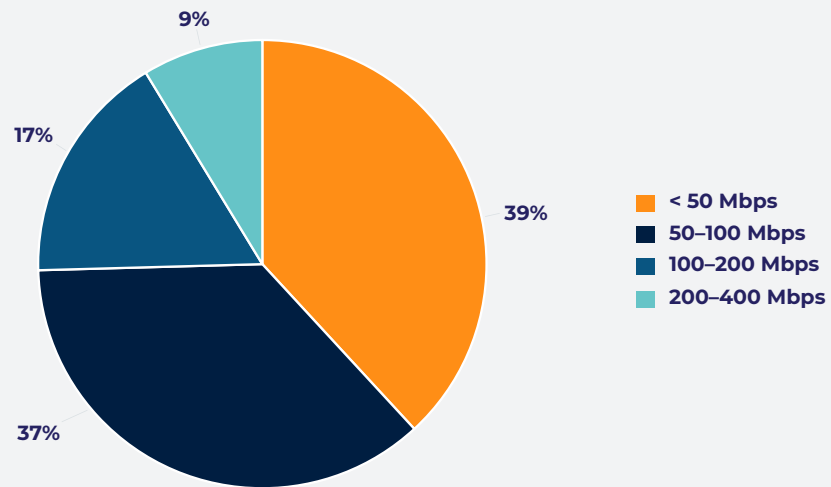
Measured by speed and bandwidth, OpenVault defines these speed clipping thresholds as monthly usage of: 100 GB or more for the 50 Mbps speed tier; 300 GB or more for the 50 - 100 Mbps speed tier; 600 GB or more for the 100 - 200 Mbps speed tier; and 1.2 TB or more for the 200 - 400 Mbps speed tier. Subscribers who reach these thresholds are prime upgrade candidates and Figure 8 outlines the opportunity for subscriber speed upgrades by speed tier.



# Identifying Speed Upgrade Candidates

FIGURE 8

## % of Potential Speed Upgrade Candidates



Source: OVBI Broadband Insights Report 3Q21



## Usage Observations



Observations from the past 3 years of OVBI data reveal that established pre-pandemic seasonality patterns of relatively flat growth or slight declines in usage from July thru September, followed by increasing usage thru December have returned, but at elevated levels of usage.



The 2 TB power user category is growing much faster on an annual basis on FRB-based networks than on UBB networks by nearly 15 percentage points — exposing FRB operators to greater strain on the network.



Consumption is growing broadly. From 3Q18 to 3Q21, the number of subscribers consuming 100 GB or less of data/month declined from 47% to 29%, a decrease of 38%. During that same time period, the number of subscribers consuming 500 GB to 1 TB nearly doubled, from 11% to 21.4%.



Annual upstream usage growth for both UBB-based and FRB-based networks reached 13% in 3Q21, while downstream growth for FRB-based networks was 54% higher than for UBB-based networks.

## Speed Observations



The growth rate of speed clippers reaching the 80% threshold.



OpenVault data analysis suggests that close to 20% of all subscribers (across speed tiers) are good candidates for speed upgrades.



# The Average Broadband Household

A snapshot of the average U.S. broadband household.

OVBI Average Broadband Household Index – 3Q21



## 435 GB

Average Bandwidth Usage



## 407 GB

Average Downstream Usage



## 253.9 Mbps

Average Downstream Speed



## 4 per household

Average Number of Streaming Services\*

\*Deloitte Insights- Digital media trends survey, 14th edition



## 28 GB

Average Upstream Usage



## 17.7 Mbps

Average Upstream Speed



## 25 per household

Average Number of Connected Devices\*

\*Statista



## Conclusion

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While broadband subscribers are exhibiting seasonal patterns typical of the second half of the year, there is a continued trend toward faster speeds, with a 2x higher adoption of the gigabit speed tier from the year prior.

At the same time, 56% of subscribers in 3Q21 subscribed to a 200 Mbps or slower speed tier and 57% of subscribers consumed between 100 GB and 1 TB of data. The intersection of these two data points is an indicator of speed clipping, in which some subscribers are pushing the edges of their speed tiers, experiencing degradation and buffering as a result.

The accelerated growth of speed clipping is an impetus for broadband providers to obtain the ability to identify and target these subscribers for speed upgrades. Achievement of this objective can lead to improved ARPU growth while also enabling a better customer experience. OpenVault encourages all network operators to leverage all the tools available to them for segmenting these subscribers and engaging them with speed upgrade campaigns. The results could prove to be beneficial to the overall broadband service provider business model.

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**By recognizing and acting upon the emerging trend of speed clipping, broadband service providers have an opportunity to improve the customer experience, while also growing their ARPU, indicating an opportunity for an important win-win.**

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# OpenVault Solutions Informing the 3Q21 OVBI Outcomes

OpenVault is the world's only solutions provider focused exclusively on optimizing networks and driving revenue for cable, fiber and wireless broadband operators. Our SaaS solutions improve network management, grow ARPU and increase customer satisfaction for more than 150 service provider engagements across four continents. Leveraging specific subscriber usage data within broadband provider's networks, we're able to gain unique insight into how subscribers consume broadband services and then deliver solutions that unlock the power of that data. Key findings within this OpenVault Broadband Insights Report point to the need for broadband providers to consider offering UBB plans, targeting at-risk subscribers for rightsizing and upgrade opportunities, and introducing proactive customer care.

The following OpenVault solutions allow providers to address these challenges and are selected from our full suite of value-improving network solutions.



## Revenue Generation

Our revenue-driving solution uses near real-time data as actionable information that allows providers to: grow their subscriber base with the flexibility to create new packages based on segments of the market; enhance value and ROI on existing infrastructure; decrease inbound call volume and truck rolls due to self-selected upgrades for rightsizing; better understand product mix selected by subscribers and create new plans targeting new market segments; and quickly identify power users to ensure they are subscribed to the appropriate product.

[Learn More](#)



## UBB Modeling and Deployment Tools

OpenVault has been deploying UBB programs for broadband providers since 2012 with UBB-enabling solutions deployed on three continents for operators with a few thousand subscribers to over one million generating over \$150 million in incremental revenue annually. Our rapid deployment approach allows providers to analyze and model the optimum package and associated revenue; create product definitions; educate subscribers on how to adapt as well as prepare customer care for support; and then launch the UBB package with ongoing metrics to gauge success.

[Learn More](#)



## Speed Clipping

Now broadband providers can identify, in near real-time, subscribers with usage behavior that approaches the maximum speed of their service packages. Perfect for upgrading to higher speed and more provider-lucrative plans, targeted subscribers will experience higher QoE and reduce their need for customer care.

[Learn More](#)







## About OpenVault

OpenVault is a market-leading source of broadband technology solutions and data-driven insights into worldwide broadband consumption patterns. OpenVault's cloud-based, SaaS solutions and tools help service providers optimize network performance, increase revenue, and improve subscriber satisfaction. OpenVault aggregates and analyzes the resulting market data to provide unparalleled granular views of consumer usage that can be used to anticipate residential and business broadband trends.

For more information, please visit [openvault.com](https://openvault.com) or contact us directly:

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