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Broadband Insights
Report (OVBI)

1Q22

Introduction

Slower broadband traffic growth during the first quarter of the year is a common seasonal trend, but in 1Q22 there were a few notable exceptions. Faster speed adoption was prevalent, with some network operators opting over the past year to increase speeds at no charge to subscribers. This has driven more data consumption by power users, who are growing across all subscriber categories, particularly the "super power user" category that consumes 2 TB or more per month.

This 1Q 2022 edition of the OpenVault Broadband Insights Report (OVBI) highlights these trends with networks that use usage based billing (UBB), where subscriber's continued interest in faster speeds is driving more data consumption and faster growth with power users. UBB operators are successfully using faster speed tiers to drive upgrades and grow ARPU as a result.

As with all editions of the OpenVault Broadband Insights Report (OVBI), this 1Q22 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 UBB plans, on which subscribers are billed based on their broadband consumption.

The growing adoption of the gigabit speed tier, especially with UBB subscribers, has continued to push bandwidth consumption to new heights, with important network management and ARPU growth implications.

Key findings from the 1Q22 OVBI include:

Usage
The monthly weighted average data consumed by subscribers in 1Q22 was 513.8 GB, up 11% from 1Q21.

Key ARPU Insight
FRB networks ended 1Q22 with over 3x more subscribers in the lowest ARPU speed tier of 50 Mbps or slower than did UBB networks.

Power Users
The growth of power users in the 2 TB usage category continued to outpace 1 TB user growth.

Key Bandwidth Usage Insight
The half a terabyte average usage milestone, first achieved in 4Q21, was maintained in 1Q22.

Speed Tiers
As subscribers continued to move into faster speed tiers, the 100 – 200 Mbps speed tier declined by 54% in 1Q22.
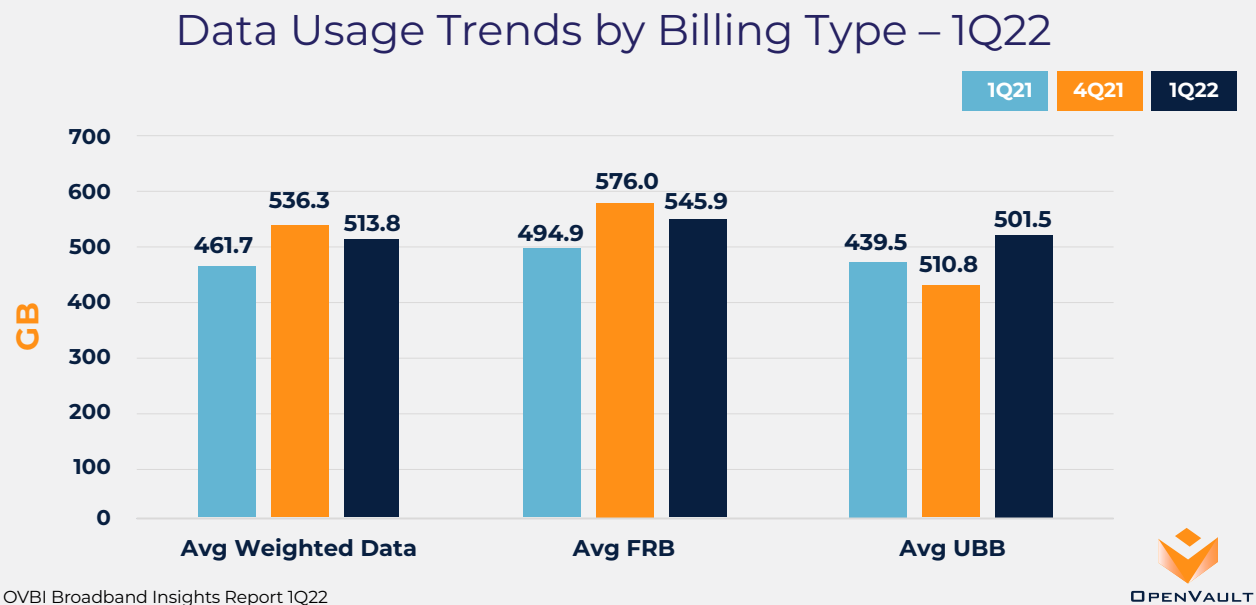
Key UBB vs FRB Insight
Median usage growth for FRB declined in 1Q22 (7%) from 4Q21, with UBB median usage growth remaining relatively flat for the same period.

1Q22 Broadband Usage Key Findings

The following broadband usage trends were observed in 1Q22.

FIGURE 1

Data Usage Trends by Billing Type – 1Q22

Legend: 1Q21 | 4Q21 | 1Q22

Category	1Q21	4Q21	1Q22
Avg Weighted Data	461.7	536.3	513.8
Avg FRB	494.9	576.0	545.9
Avg UBB	439.5	510.8	501.5

(GB on y-axis)

Source: OVBI Broadband Insights Report 1Q22

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- The monthly weighted average data consumed by subscribers in 1Q22 was 513.8 GB, up 11.3% from 1Q21's weighted average of 461.7 GB, and down 4.2% sequentially (quarter-over-quarter) from 4Q21. Weighted averages combine data from FRB and UBB subscribers.

- Despite seasonal trends in the first quarter, which typically result in flat or slightly negative growth when measured against the fourth quarter of the prior year, 1Q22 maintained the half terabyte or more usage benchmark, which was first established in 4Q21, across all categories.
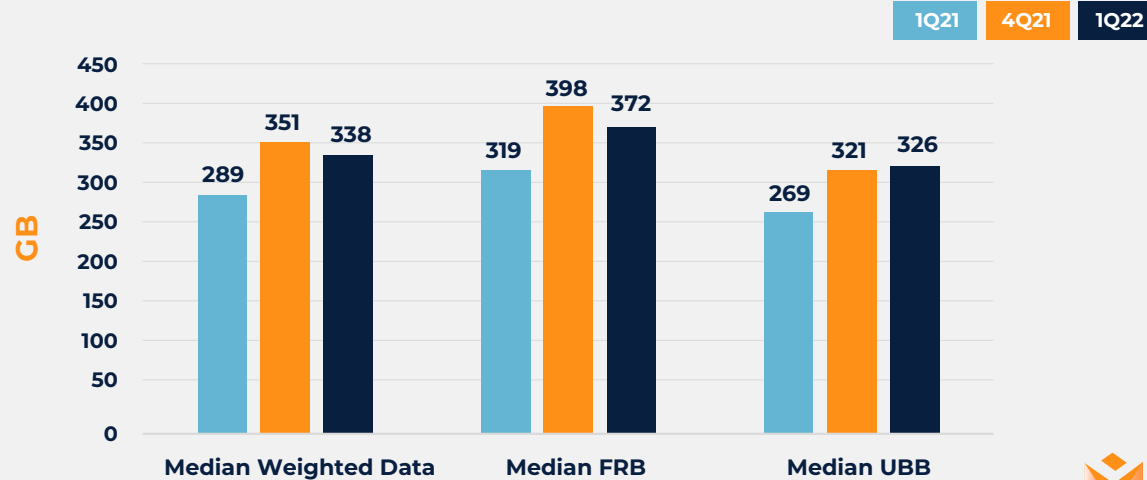
Although UBB historically has moderated usage growth when compared to FRB, the migration of UBB subscribers to higher speed, unlimited usage plans drove annual UBB usage growth of 14.1% in 1Q22, versus 10.3% for FRB operators.

FIGURE 2

Median Usage Trends by Billing Type – 1Q22

Legend: 1Q21 | 4Q21 | 1Q22

	1Q21	4Q21	1Q22
Median Weighted Data	289	351	338
Median FRB	319	398	372
Median UBB	269	321	326

GB (y-axis, 0–450)

Source: OVBI Broadband Insights Report 1Q22
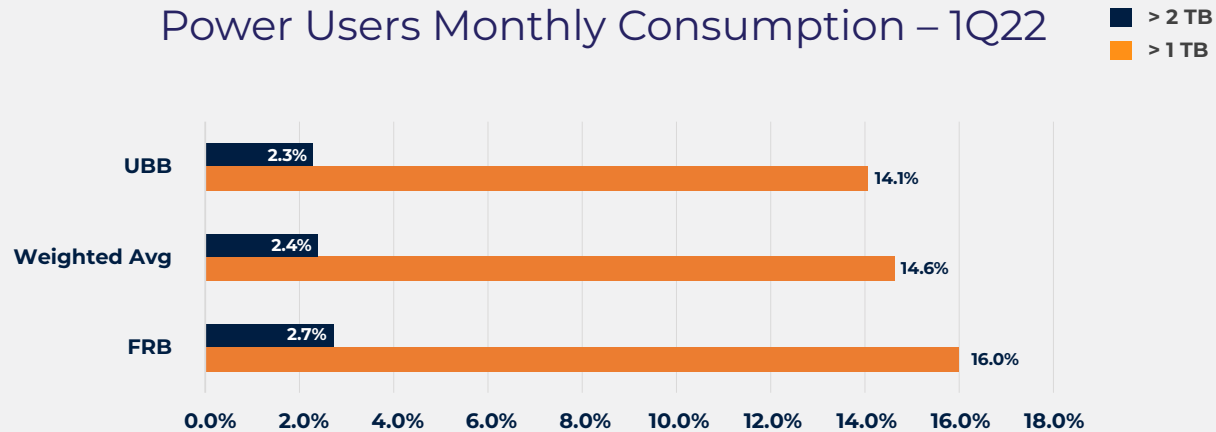
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- The monthly weighted median usage in 1Q22 was 338 GB, up 17% from 289 GB a year ago, and down close to 4% sequentially from 4Q21's median of 351 GB.

- Median usage for FRB providers (372 GB) was 14% higher than for UBB providers (326 GB) in 1Q22.

Annual median usage growth (17%) was more than 50% higher than average usage growth (11%) in 1Q22, indicating widespread usage increases across the entire subscriber population.

FIGURE 3

Power Users Monthly Consumption – 1Q22

■ > 2 TB
■ > 1 TB

	> 2 TB	> 1 TB
UBB	2.3%	14.1%
Weighted Avg	2.4%	14.6%
FRB	2.7%	16.0%

0.0% 2.0% 4.0% 6.0% 8.0% 10.0% 12.0% 14.0% 16.0% 18.0%

Source: OVBI Broadband Insights Report 1Q22
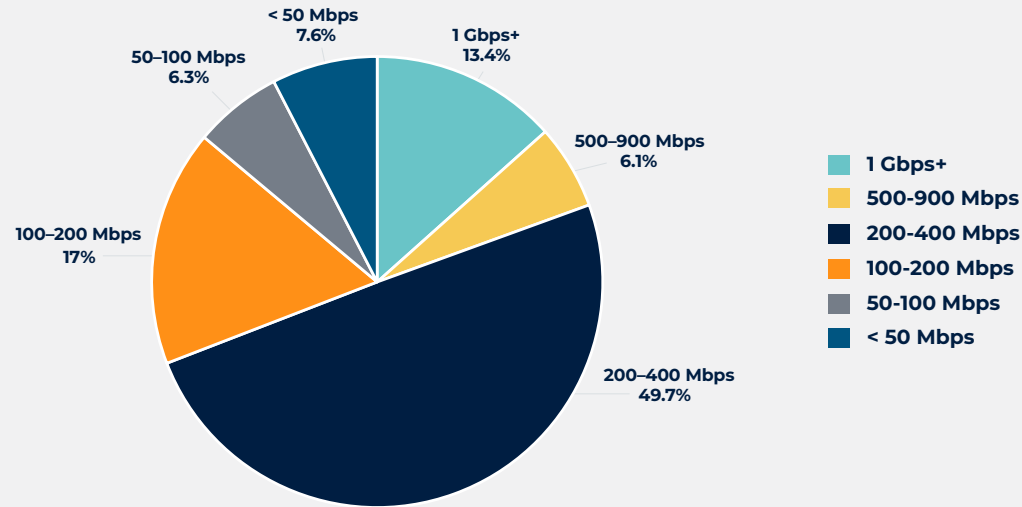
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- The super power user category of 2 TB of data consumption per month grew faster in 1Q22, up 31% from a year ago, compared to only 18% growth for 1 TB power users, a difference of over 72%.

- Although UBB networks saw higher annual percentage growth (44%) over FRB networks (22%) for 2 TB users in 1Q22, UBB operators still registered lower overall subscriber usage of 501.5 GB per month, compared with 545.9 GB per FRB network subscriber, a difference of 44.4 GB per subscriber per month. This is further evidence that the UBB approach provides subscribers with the faster speeds they desire in a way that minimizes network congestion.

Provisioned Speed Tiers – 1Q22

Source: OVBI Broadband Insights Report 1Q22

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- The gigabit subscriber tier in 1Q22 reached 13.4%, up nearly 37% from a year ago (9.8%).

- At 50%, the 200 – 400 Mbps speed tier was the most popular tier in 1Q22.

- The slowest speed tier of less than 50 Mbps continues to shrink, at 7.6% in 1Q22, down 25% from a year ago (10.1%).
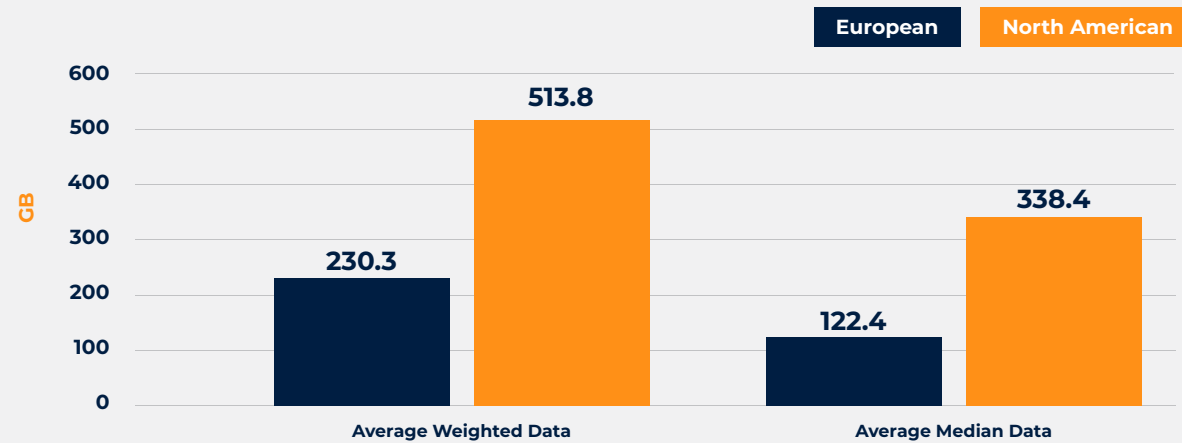
The impact of many service providers moving subscribers into faster speeds in the past year, often at no cost to the subscriber, is apparent, with speed tiers below 200 Mbps or slower down close to 90% collectively from a year ago.

European vs. North American Data Usage – 1Q22

European | North American

GB

600
513.8
500
400
338.4
300
230.3
200
122.4
100
0

Average Weighted Data   Average Median Data

Source: OVBI Broadband Insights Report 1Q22

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- European average data usage (230.3 GB) declined by 3.4% from 4Q21 (238.3), highlighting seasonal usage patterns that are similar to what were seen in North America.

- North American average data usage (513.8 GB) was just over 2.2x that of European average data usage (230.3 GB).
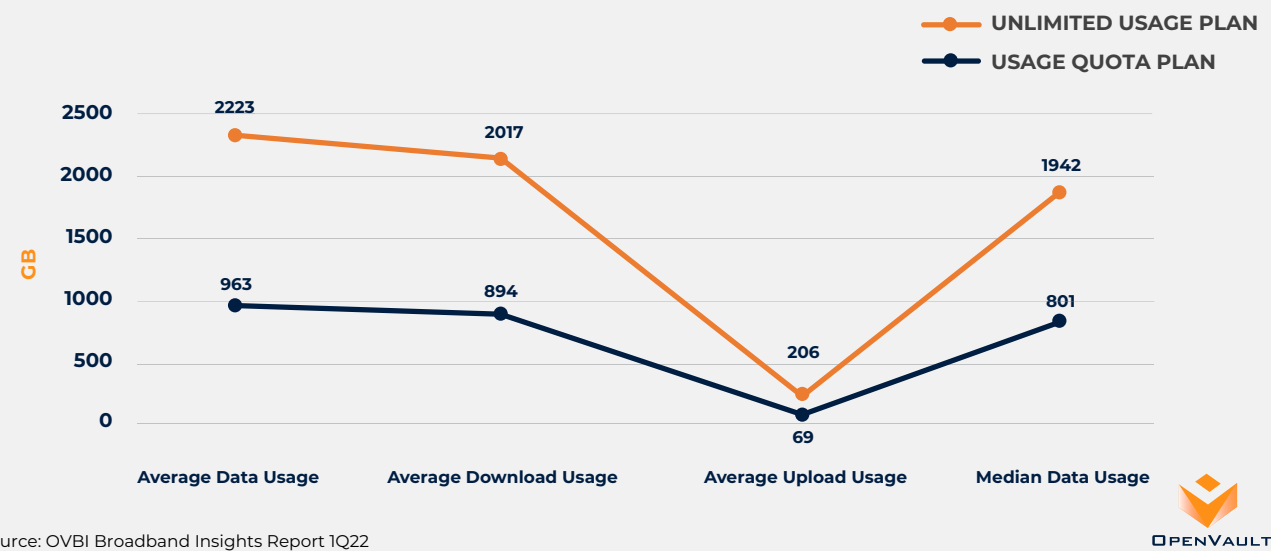
UBB Gigabit Speed Adoption Implications

The adoption of gigabit speed tiers has been accelerating over the past few years for many reasons, including the impact of the COVID-19 pandemic on user behavior. This faster gigabit speed tier adoption trend has been more prevalent with usage-based billing (UBB) operators than with flat-rate billing (FRB) operators, with important implications.

Gigabit Speed Tier Usage Patterns – 1Q22

UNLIMITED USAGE PLAN
USAGE QUOTA PLAN

	Average Data Usage	Average Download Usage	Average Upload Usage	Median Data Usage
Unlimited Usage Plan	2223	2017	206	1942
Usage Quota Plan	963	894	69	801

Source: OVBI Broadband Insights Report 1Q22

Better penetration of higher ARPU gigabit speed tiers for UBB operators occurs primarily, due to UBB operators including an unlimited usage benefit to their gigabit speed tier. In 1Q22, UBB networks had 27% more gigabit speed tier subscribers than FRB networks. Having more gigabit subscribers on a network means more revenue, but it also means more data usage. Figure 6 compares usage patterns between UBB gigabit subscribers with an unlimited usage plan and a standard usage quota plan for one UBB network operator.

Unlimited usage gigabit subscribers on average consumed 2.3x the data of usage quota subscribers and close to 3x the upstream data. This increased data usage among UBB subscribers, thanks to the faster adoption of gigabit speed tiers, was why super power users of 2 TB or more usage per month grew faster on UBB networks (44% growth) in 1Q22 than on FRB networks (22% growth).
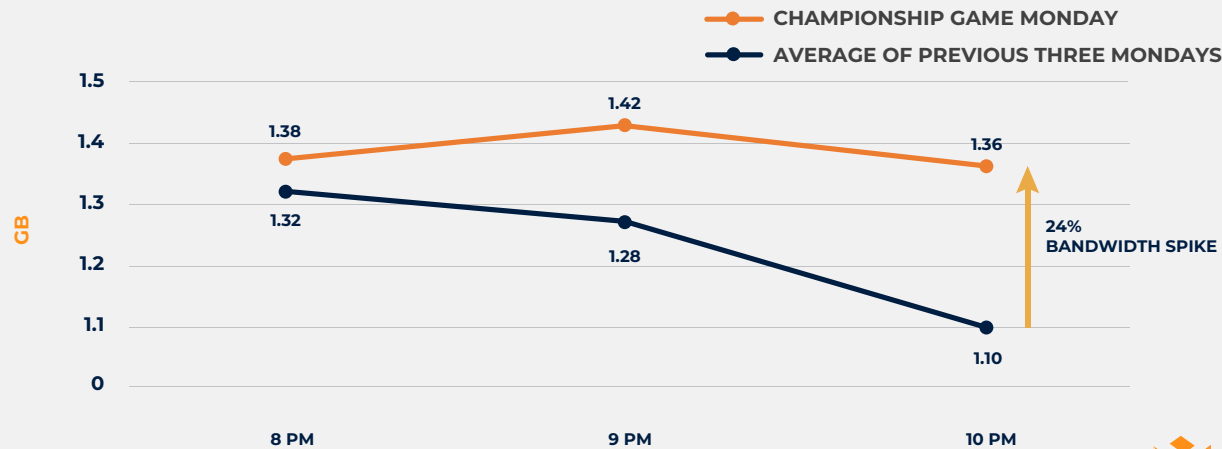
Big Events Drive Bandwidth Spikes

Anecdotally, we all assume big TV events drive bandwidth usage spikes. OpenVault data can now put real numbers to this assumption, with data from the United States' NCAA March Madness College Basketball Championship Game between Kansas and Duke. Figure 7 outlines the traffic patterns for network operators in the state of Kansas during the championship game, illustrating a 24% spike in bandwidth usage during the height of the game at 10:00pm, over the average of the previous three weeks.

FIGURE 7

NCAA Championship Game Bandwidth Spike
(Kansas Market)

● **CHAMPIONSHIP GAME MONDAY**
● **AVERAGE OF PREVIOUS THREE MONDAYS**

GB

1.5
1.4 — 1.38 — 1.42 — 1.36
1.3 — 1.32
1.2 — 1.28
1.1 — 1.10
0

24%
BANDWIDTH SPIKE

8 PM   9 PM   10 PM

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Source: OVBI Broadband Insights Report 1Q22

This is important data to understand for network planning purposes. As more subscribers migrate to OTT video applications, bandwidth spikes for big events will become even more prominent.

Usage Observations

Speed Observations

The average downstream data usage of 203 GB in 2018 has more than doubled in four years to reach 481.3 GB today. Average upstream usage has nearly tripled in the same period.

In 2017, less than 10% of subscribers consumed between 500 GB and 1 TB of data per month. Today it's close to 25% of subscribers.

UBB networks have 27% more higher-ARPU 1 Gbps subscribers than FRB networks have.

North American median usage (338.4) outpaces European median usage (122.4) by a factor of over 2.75x.

UBB subscribers who are in unlimited usage tiers, use nearly 3x more upstream bandwidth (206 GB) than other UBB subscribers (69 GB).

While UBB networks saw a 42.3% decline in lower-ARPU 50 Mbps and below subscribers from last year, FRB networks actually grew in that category by 16.7%.

Average Broadband Household

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

514 GB
Average Bandwidth Usage

OVBI Average Broadband Household Index – 1Q22

481.3 GB
Average Downstream Usage

311.9 Mbps
Average Downstream Speed

8.8 per household
Average Number of Streaming Services*

*TiVo, October 2021

32.5 GB
Average Upstream Usage

22.5 Mbps
Average Upstream Speed

25 per household
Average Number of Connected Devices*

*Statista

Conclusion

Despite a typical seasonal slowdown, broadband subscribers still consumed more than a half terabyte of data each month during 1Q22. Consumers continue to be attracted to faster speeds, especially at the upper speed tiers. This in turn is driving more power user growth, especially on UBB networks.

One network operator observed median usage for UBB gigabit subscribers of close to 2 TB, indicating the implications of gigabit speed adoption with unlimited usage. While UBB operators are seeing faster growth for power users and greater gigabit speed tier adoption, UBB networks are still better positioned to manage overall network traffic, with less bandwidth consumption across all subscribers on average, when compared to FRB networks.

These important trends cannot be ignored, as consumers are only going to demand more. Delivering an acceptable customer experience to all subscribers while maximizing revenue opportunities in the face of this reality is the challenge of the day. Network operators should explore all options, including examining the role of usage-based billing to meet this challenge head on.

OpenVault views the trends revealed through the OVBI as leading indicators for network operators. Industry trends including the 10G initiative and the beginnings of the metaverse will only magnify the implications, compelling network operators to plan accordingly. Planning is critical and using the right tools to inform that plan have never been more important.

OpenVault Solutions to Address This Report's Insights

From network congestion to increasing revenue, OpenVault offers solutions to improving the value of broadband networks. Two of the solutions associated with this report's insights are:

Subscriber Upgrade Candidates

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, OpenVault solutions enable targeted subscribers to experience higher QoE and reduce their need for customer care.

Boost Network Capacity

For providers who have invested in a DOCSIS 3.1 network, OpenVault offers a means to supercharge it. Broadband providers can deploy a closed-loop and automated data-driven solution that dynamically creates bandwidth without human intervention. Through persistent analysis of data from each CM and CMTS, the OpenVault Profile Management Application (PMA) learns the state of the system and creates profile sets tailored to the unique real-world environment of each OFDM/OFDMA channel – essentially creating "virtual node splits" and opening up more usable bandwidth.

Learn more about these and other revenue increasing and network management solutions at OpenVault.com.

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.

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