Measuring Broadband New Zealand

Report 25, October 2025

The Measuring Broadband New Zealand programme measures the quality of New Zealand's fixed line, fixed wireless, and satellite internet. The aim of the programme is to independently measure and report on the actual in-home broadband performance so consumers can assess different providers, plans, and technologies to help them choose the best broadband for their homes. It will also encourage providers to improve and compete on their performance.

Please refer to page 11 for speed test results. The report also includes summary tables at the back that show the results for easy reference.

This report provides an overview of the findings from data collected between 1st August and 31st August 2025.

Contents

Overview

This report presents the key indicators of consumer internet performance in New Zealand from testing during August 2025.

Highlights include:

1. **For the first time, results from a Wireless Internet Service Provider (WISP) are included, with Lightwire providing inaugural download, upload, and latency data.**
2. **Results for quality of service and quality of experience metrics for the newly upgraded Fibre 100 (was Fibre 50) and Fibre 500 (was Fibre 300) plans.**
3. **Bufferbloat comparison across a variety of plans including 4G Fixed Wireless for the first time.**

This report draws on testing from a wide range of providers, and a full list of RSPs included in this MBNZ report can be found in Table 2. There are a range of other RSPs to choose from who are not currently included in the testing, and we encourage Kiwis to shop around. Previous reports released by the MBNZ programme can be found here[1].

The MBNZ programme has a code of conduct to ensure that the parties involved act in good faith and in accordance with principles relating to data validation, 'gaming' of results, and appropriate public usage of the MBNZ results. A list of the signatories is included in the code, including the Commission and SamKnows. All tested RSPs complied with the current code of conduct, including validation of the data used in this report. You can see the code of conduct on our website here.[2]

As the MBNZ programme has expanded significantly over the past few years, incorporating more technologies, plans and tests, we have taken steps to refine the report. To make the reports more focused, we have removed some charts that we believe are less impactful or less relevant for consumers. We value your feedback—if there is a chart or data point you found particularly useful and would like to see reinstated, please do not hesitate to reach out to us.

[1] https://comcom.govt.nz/regulated-industries/telecommunications/monitoring-the-telecommunications-market/monitoring-new-zealands-broadband/Reports-from-Measuring-Broadband-New-Zealand
[2] https://comcom.govt.nz/__data/assets/pdf_file/0026/334871/Measuring-Broadband-NZ-Code-of-Conduct-October-2023.pdf

Changes to the MBNZ Methodology

Ongoing collaboration with RSPs and industry experts is essential to the success of the Measuring Broadband New Zealand programme. As we expand our sample and test fixed wireless connections, we have gained valuable insights into how some of our testing processes may impact service providers.

One key area is our continuous latency test, which provides data for the idle latency, disconnections, and latency under load charts. This test requires a continuous connection, but fixed wireless networks are designed to manage radio frequencies efficiently by reallocating resources from devices that are not actively in use. Industry feedback highlighted that our continuous testing was holding onto these frequencies, potentially affecting network capacity.

We have listened and are making changes. To reduce impact on networks, we are phasing out the permanent latency testing configuration for Fixed Wireless units. The latency results shown in Figure 15 on page 28 use results from snapshots of hourly testing compared to continuous monitoring. This change allows us to continue reporting on network performance while minimising the potential impact on broadband services. This change also allows us to include comparable latency results for embedded Fixed Wireless plans which uses an identical hourly testing methodology and can be seen on page 30 in Figure 16.

In this report, we have retired the old latency under load metric, and are reporting on results from an updated test client that runs independently of other tests. This allows for more flexible measurement of effects that only appear under heavy load while respecting the resource allocation strategies employed in Fixed Wireless networks.

Executive Summary

Benchmarking

1. All plans saw stable download, upload and latency results compared to the previous reporting month. Fibre 100 and Fibre 500 download speeds increased in line with the expected upgrades from Chorus.

Application Performance

1. Online game store results infer the time taken to download Hogwarts Legacy from three popular online game stores across plans. Following the upgrade in download speeds for the Fibre 100 and Fibre 500 plans by Chorus, the average time taken to download Hogwarts Legacy decreased from 3 and a half hours to under 2 hours for households on Fibre 100, and from under 40 minutes to around 20 minutes for households on the Fibre 500 plan. Fibre Max and HFC Max achieved average download speeds to the three game stores capable of downloading a 79.5GB game in 15 mins or less during peak hours. LEO Satellite plans averaged just under 1 hour, while VDSL averaged between 3 to 4 hours. ADSL plans had the worst performance, averaging over 18 hours.

2. 100% of HFC, Fibre 100, 500, Fibre Max households were able to support at least 4 simultaneous UHD Netflix Streams during peak hours. 89% of LEO Satellite households were able to support 2 simultaneous streams on Starlink's Residential plan, and 50% on their Residential Lite plan.

3. Latency to video conferencing services remained consistent for all technologies compared to the previous report.

Broadband Plan Comparison

This report includes broadband plans across a range of technologies and areas. The report shows performance comparison split across areas where Fibre broadband is available, and where Fibre is not an option. This comparison refines and expands our previous urban and rural view to better allow consumers to see how different technologies such as 4G Fixed Wireless perform in different areas. Areas with access to Fibre plans (Specified Fibre Areas) are the locations where Chorus can stop providing copper-based internet services (ADSL & VDSL plans) and are withdrawing these services because Fibre is available. These are typically in more urban areas of New Zealand. More information on the withdrawal of copper-based internet services is available on the Commerce Commission website here[1].

ADSL - Remains suitable for traditional services like web browsing, email, and basic video streaming, particularly when there is only one person using the connection. Due to physical limitations, the highest-performing ADSL lines will never achieve download speeds higher than ~25 Mbps. The distance from house to exchange has a big effect on attainable speeds, with many ADSL lines averaging under 8 Mbps download. The higher latency, more frequent dropouts, and lower upload speeds make ADSL less suitable for video calls and multi-user households.

VDSL - There is a range in performance, some lines will achieve similar download/upload speeds to ADSL, whereas a small proportion of lines will achieve speeds comparable with Fibre 100, and certainly with lower speed Fibre plans. Lower speed lines will be less suitable for applications that use a lot of data, such as video conferencing and Ultra High Definition (UHD) streaming, whereas higher speed lines will generally support more data-heavy applications.

Fibre 100 (previously Fibre 50) - Supports latency-sensitive applications such as online gaming. Fibre 100 will also support applications such as UHD streaming and video conferencing. Fibre 100 may be unsuitable for data-heavy households with multiple simultaneous users. In June 2025, Chorus upgraded download and upload speeds for Fibre 50 consumers at no extra cost, from 50 Mbps download speed to 100 Mbps, and 10 Mbps upload to 20 Mbps. These changes are reflected in this MBNZ report.

Fibre 500 (previously Fibre 300) - Supports latency-sensitive applications such as online gaming. Fibre 500 will also support data-heavy applications such as UHD streaming with multiple simultaneous users or video conferences with a large number of participants. Fibre 500 will cover

[1] https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/consumer-protections-for-copper-withdrawal

most users' requirements. In June 2025, Chorus upgraded download speeds for Fibre 300 consumers at no extra cost, from 300 Mbps download speed to 500 Mbps. These changes are reflected in this MBNZ report.

Fibre Max - Higher download and upload speeds than Fibre 500. The idle latency to internet applications, such as online games, through a Fibre Max line is the same as through any other Fibre plan. Latency under load is lower for Fibre Max plans than for Fibre 500. Performance can vary depending on RSP, and Fibre 500 will support most modern internet applications and multi-user households. Fibre Max might be needed in cases where there is a genuine need for more bandwidth (e.g. frequently uploading or downloading large files) or when using extremely latency sensitive applications on a busy connection.

HFC (Cable) - Available in some areas (Wellington, Upper & Lower Hutt, the Kapiti Coast, and parts of Christchurch). HFC is also referred to as Cable and DOCSIS. One New Zealand is the only provider operating an HFC network in New Zealand. HFC lines achieve similar download performance to Fibre Max, and similar upload performance to Fibre 500. However, latency can be higher due to the difference between Cable and Fibre technologies.

4G Fixed Wireless - Can offer higher download speeds than ADSL, and on average similar speeds to VDSL. Users will experience higher latencies due to the cellular technology underlying these plans. 4G Fixed Wireless has the highest latency of all technologies, and also delivers lower download/upload speeds and more frequent dropouts than Fibre. Speeds also can be more variable depending on the time of day, and other environmental factors. This range of performance factors means 4G Fixed Wireless should not necessarily be preferred to Fibre on performance grounds, however in some areas 4G Fixed Wireless is the only option for consumers, and even in areas where Fibre is available there are other reasons consumers might choose this option (ease of installation for example).

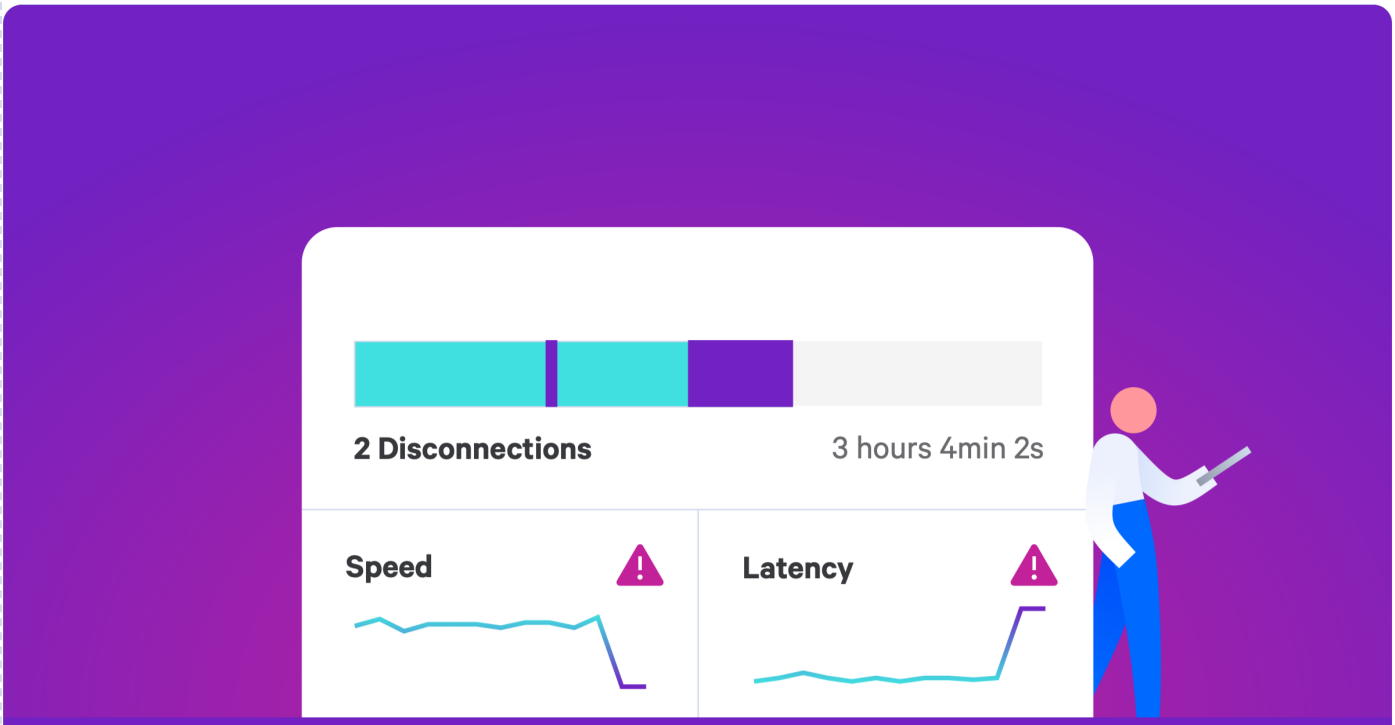
5G Fixed Wireless - Supports data-heavy applications, such as UHD streaming with multiple simultaneous users. Being a fixed wireless technology, users will likely experience higher latencies due to the nature of cellular technology. Speeds also can be more variable depending on the time of day, and other environmental factors. The 5G Fixed Wireless results presented in this report are specific to Spark. As each RSP has different fixed wireless infrastructure, these results should not be directly compared between RSPs.

WISP Fixed Wireless - WISP broadband delivers internet wirelessly from local towers to a receiver at a user's home, making it an option in areas where fixed-line services like Fibre are not

available. Typical speeds and latency for WISP are similar to 4G Fixed Wireless, making it suitable for everyday online activities such as streaming, web browsing, video calls, and online gaming. As with other wireless technologies, performance can vary depending on distance from the tower, local terrain, and environmental conditions. The WISP results presented in this report are specific to Lightwire. As each WISP has different infrastructure, these results should not be directly compared with other WISPs.

LEO Satellite - Available in both rural and urban areas and is transmitted wirelessly using a satellite and ground based satellite dish. Typically higher download speeds than a Fibre 100 plan, but this can vary with location. While speeds can be expected to handle most applications, including video conferencing and streaming, it is not as consistent as fixed line broadband due to factors such as congestion and bad weather. Starlink is currently the only LEO Satellite provider included in the MBNZ report. Starlink also offer a Residential Lite service, which means that traffic is deprioritised over their Residential service during peak hours. Results for both the Residential (LEO Satellite) and Residential Lite (LEO Satellite (Lite)) plans are included in MBNZ.

Other Broadband Plans - There are other plans available that are not currently reported on by MBNZ. Fibre 30 and 200 plans should be broadly consistent with results measured for Fibre 100, 500 and Fibre Max for latency and reliability metrics. The main differences for these lower speed Fibre plans would be lower download and upload speeds, meaning it would take longer to download and upload larger files, and they would be able to support fewer users at the same time when using video streaming services.



Quality of Service & Reliability

In this section we report on the performance of a number of popular plans across New Zealand for quality of service metrics.

Some results in this section are shown with error bars representing the 95% confidence interval for each plan. This means that if we had repeated our measurements 100 times, we would expect the true result to fall within the black bands in at least 95 of the 100 cases. We have continued to include weighted results for Fibre 500 and Fibre Max plans.

The transparent bars show plans with a sample size lower than we would typically include within reporting. These plans have larger error bars due to the smaller sample size and care should be taken when comparing these plans against others. We recommend consumers factor in the error bars when comparing plan averages, especially those with smaller sample sizes.

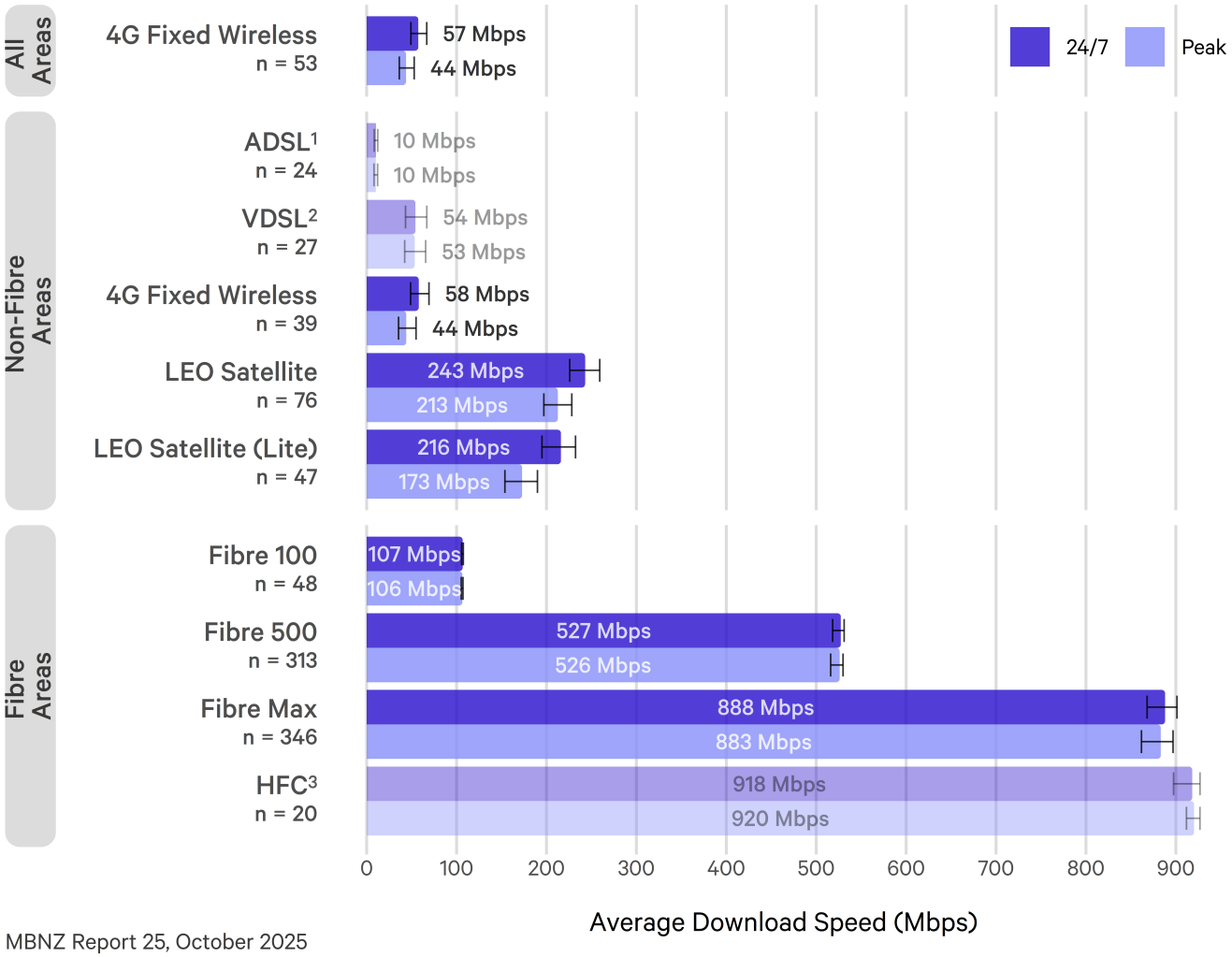
Speed Tests - Download

Figures 1 and 13 give an overview of download and upload speed across the country. These are included in every report to provide a benchmark that can be tracked over time. These results are split across Fibre areas, where Fibre is available to consumers and non-Fibre areas where Fibre is not available. There were not enough Whiteboxes to report ADSL, VDSL and 4G Fixed Wireless results in Fibre areas.

Peak hours are the times when people typically use the internet; in New Zealand this is 7pm to 11pm on Monday-Friday.

Figure 1: Average Download Speeds by Plan

Average of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm. The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 53). Error bars show 95% confidence intervals of the mean.



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[1] Results for ADSL are based on a sample size of 24 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 27 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Key Observations

- ADSL and VDSL results are consistent with those seen in the previous report, showing similar results during peak hours.
- LEO Satellite results are broadly consistent with the previous report. Results for Starlink's Residential Lite plan[1] show a small decrease in speeds compared to their Residential plan, particularly during peak hours.
- Results for 4G Fixed Wireless across all areas and Fibre areas show no noticeable difference in average download speeds compared to the previous MBNZ report.
- LEO Satellite and 4G Fixed Wireless show a larger variation between peak hour download speeds and all hour download speeds compared to fixed line plans. This could be due to these technologies being more sensitive to congestion during peak hours. There was not enough sample in fibre areas for 4G Fixed Wireless to compare results between fibre areas and non-fibre areas.
- Fibre 100 and Fibre 500 speeds increased in line with the expected upgrades in provisioned download speed by Chorus, now averaging over 100 Mbps for Fibre 100 (up about 50 Mbps from previous Fibre 50) and 500 Mbps for Fibre 500 (up about 200 Mbps from previous Fibre 300). Fibre Max average download speeds are consistent with previous results. RSP specific results for Fibre Max and Fibre 500 can be found in Figures 2 and 3.
- Results for HFC are broadly consistent with the previous report, showing a small increase in average speeds.

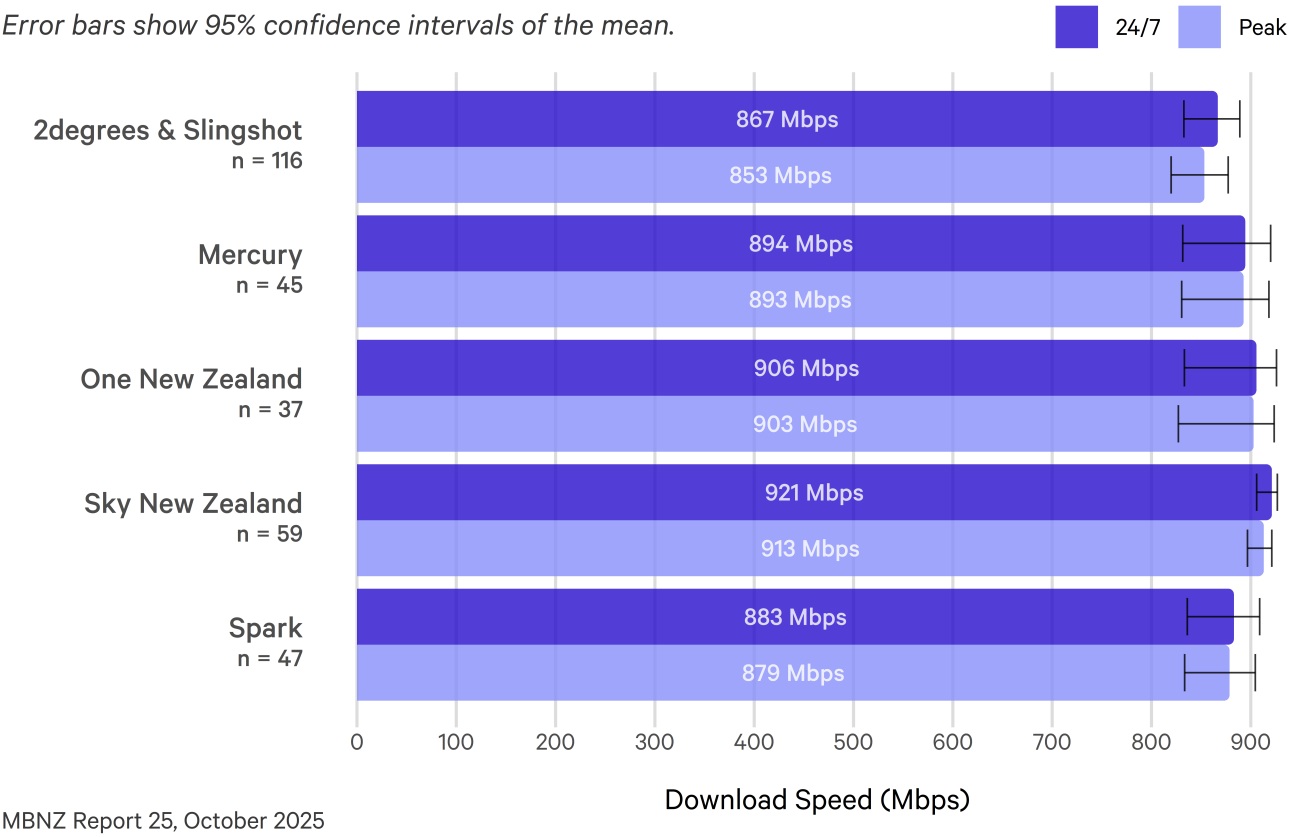
[1] Starlink offer a Residential, and Residential Lite service (previously branded Standard and Deprioritized). Traffic for the Residential Lite service is deprioritised over the Residential service during peak hours. Results for both the Starlink Residential (LEO Satellite) and Starlink Residential Lite (LEO Satellite (Lite)) plans are included in MBNZ.

Fibre Max Breakdown by RSP

Fibre Max plans are derived from 'gigabit' wholesale products. Since around 6% of the data in HTTP traffic is used up by protocol overhead (IP and TCP headers), the highest speed test result that can be achieved by a Fibre Max line is around 940 Mbps.

Figure 2: Average Fibre Max Download Speed by RSP

Average of monthly household averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 116).
Error bars show 95% confidence intervals of the mean.



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Key Observations

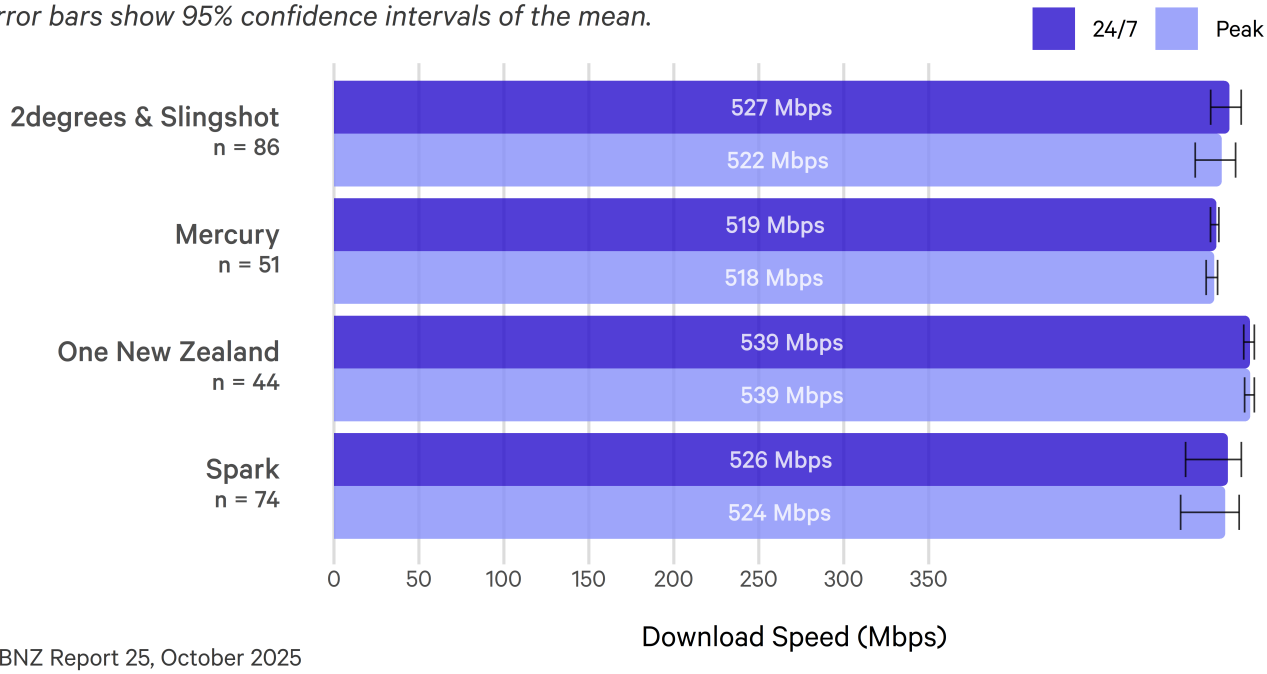
- For all RSPs, the results are broadly in line with those seen in the previous report, with 2degrees & Slingshot showing a small decrease in average download speeds.
- There were not enough Fibre Max volunteers on Contact Energy, Electric Kiwi, PureLink, Voyager or WorldNet Services during the measurement period to report results for these RSPs. All tested RSPs are included in the overall Fibre Max results shown in Figure 1.

Fibre 500 Breakdown by RSP

The speeds at which Fibre 500 is typically advertised to consumers are 500 Mbps download and 100 Mbps upload. In practice, since the provisioned speed is set slightly higher to allow for extra bandwidth used up by the network protocol overhead, it is quite common to see measured download speeds close to or slightly above 500 Mbps.

Figure 3: Comparison of Average Fibre 500 Download Speeds across RSPs

Average of monthly household averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 86)
Error bars show 95% confidence intervals of the mean.



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Key Observations

- Average download speeds increased for all RSPs in line with Chorus upgrading download speeds from 300 Mbps to 500 Mbps. All RSPs shown in the chart achieve average download speeds above 500 Mbps, including during peak hours.
- There were not enough volunteers on Contact Energy, Electric Kiwi, Inspire Net, Sky New Zealand, Voyager or Wireless Nation to report results. All tested RSPs are included in the overall Fibre 500 results shown in Figure 1.

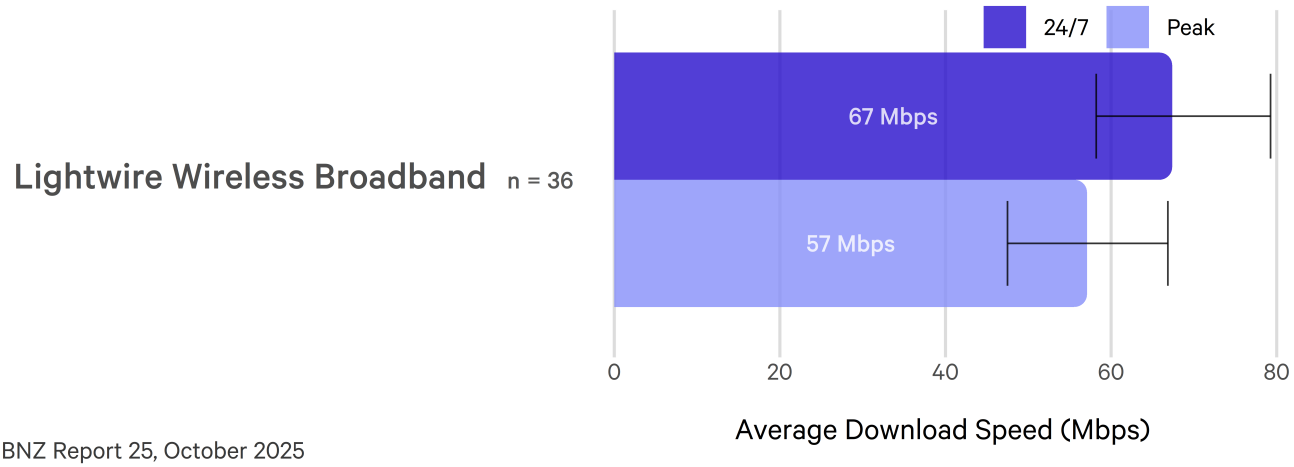
WISP Fixed Wireless Download Speeds

This is the first report that includes speed results from a Wireless Internet Service Provider (WISP), broken down by provider. Overall performance results for WISP plans are not available due to a small sample size.

This report only includes results from Lightwire's Wireless Broadband plan. Lightwire uses a fixed wireless model to provide internet to rural New Zealand homes, where a signal is beamed from a high-site tower to a receiver usually installed on a user's roof.

Figure 4: Average Download Speeds for WISP Fixed Wireless Plans

Average of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm. The number of whiteboxes contributing to each result is shown under each plan name (eg n = 36). Error bars show 95% confidence intervals of the mean.



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Key Observations

- The average download speed for Lightwire's Wireless Broadband plan was 67 Mbps, with a small decrease of 10 Mbps during peak hours.
- These results are similar to the average download speeds across all 4G Fixed Wireless plans and RSPs in NZ, which is 57 Mbps during all hours, and 44 Mbps during peak hours.

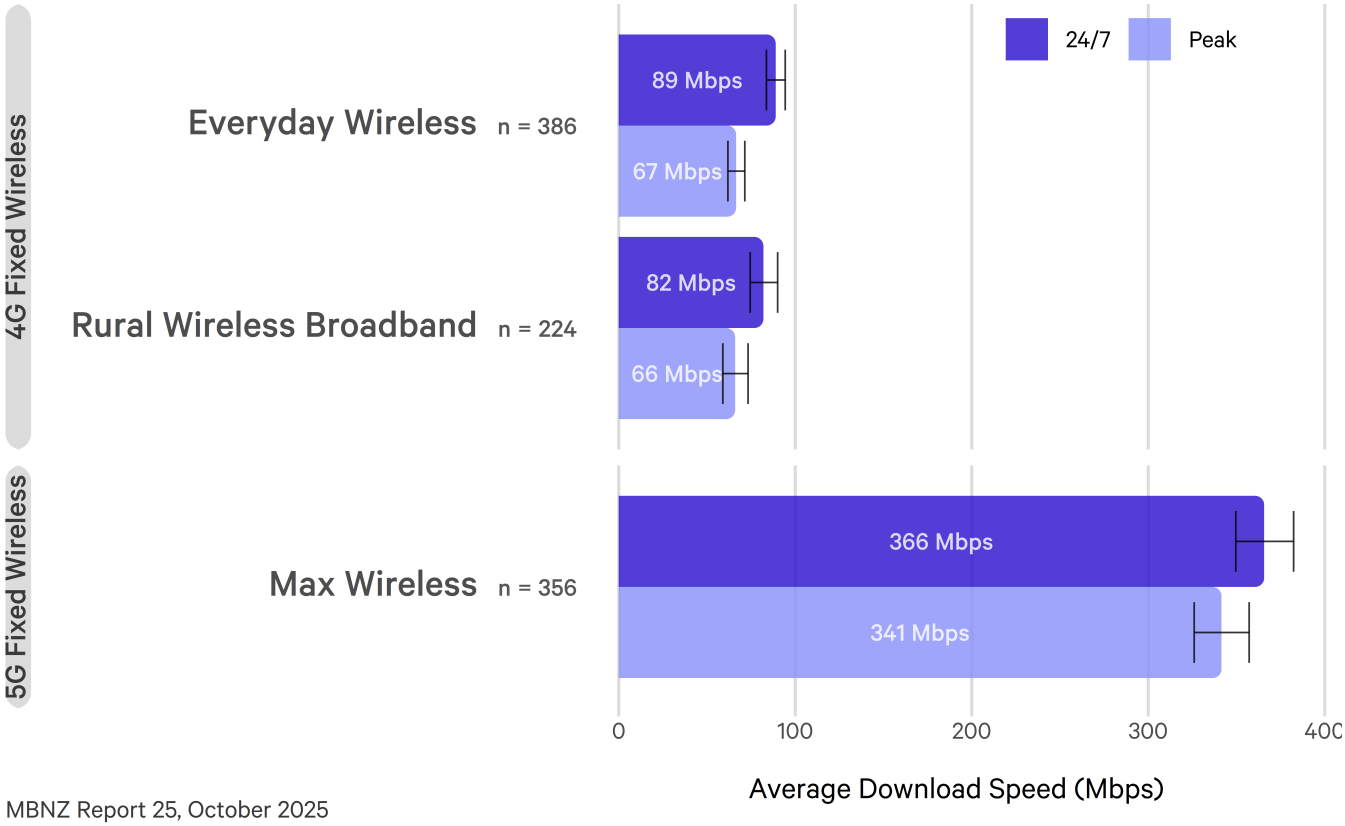
Spark Fixed Wireless Embedded Download Speeds

This report includes results from embedded agent testing, with SamKnows (part of Cisco) embedding its software directly into the modems of customers of an RSP. The embedded agent uses the same methodology as the Whitebox. Any customer with a modem that has the embedded software can become part of an RSP's test population. More details on this testing can be found in the technical FAQs on the Commerce Commission's website here.

Spark is the first RSP to submit results of embedded agent testing for inclusion in the MBNZ report. To do so, Spark randomly selected around 1000 customers across their Everyday Wireless, Max Wireless, and Rural Wireless Broadband plans with Spark's Wireless Broadband modems (Spark Smart Modem 2 or a 5G Smart Modem), to be part of the sample group. We have ensured that this has resulted in a geographically representative sample of the plans being tested. The Spark modems with the embedded agent ran a comparable test schedule to the Whitebox agents used in the MBNZ project using the same off-net test servers, located in Auckland, Wellington, and Christchurch.

Figure 5: Average Download Speeds for Spark Fixed Wireless Plans

Average of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of embedded agents contributing to each result is shown under each plan name (eg n = 386).
Error bars show 95% confidence intervals of the mean.



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Key Observations

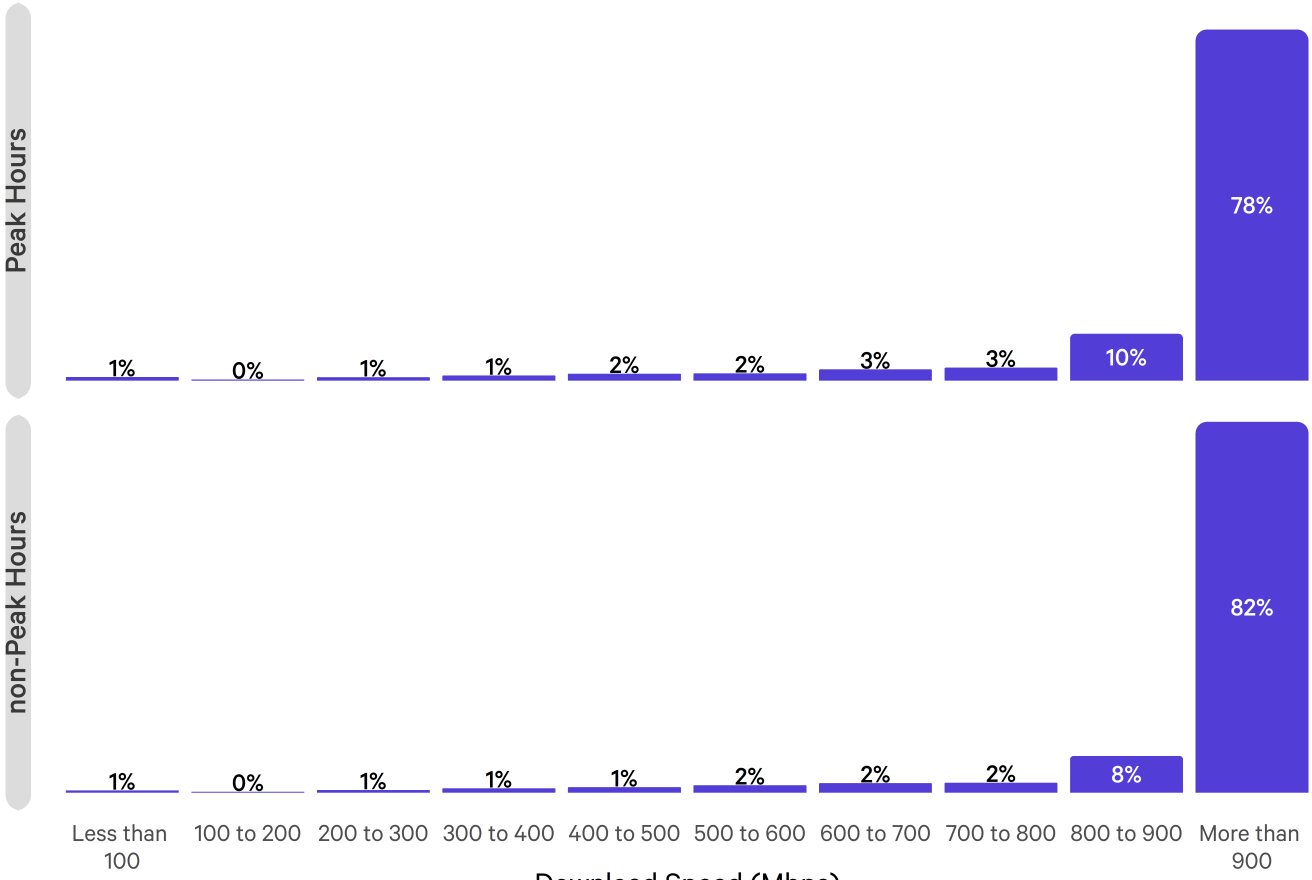
- There is minimal difference in average download speeds between Spark 4G Everyday Wireless and Rural Wireless Broadband, with both plans seeing slightly lower download speeds during peak hours.
- The average download speeds across all 4G Fixed Wireless plans and RSPs in NZ is 57 Mbps during all hours, and 44 Mbps during peak hours. All average results for the Spark 4G plans measured are higher than the average download speed of all 4G Fixed Wireless results.
- There are a number of factors that influence fixed wireless broadband performance including distance, and number of customers connected to the nearest cell tower. During peak hours, the number of customers connected to a cell tower in an urban area can be much higher than in a rural area, which could be one explanation for a larger decrease in average peak hour speeds in urban areas.
- The average download speed measured for Spark's Max Wireless 5G Plan was 366 Mbps during all hours, and 341 Mbps during peak hours.

Distribution of Fibre Max Results

Figure 6: Download Speeds on Fibre Max Plans

Distribution of test results across 347 Fibre Max households

Average (24/7) download speeds for Fibre Max plans is 888 Mbps; this varies by RSP and over time.



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Key Observations

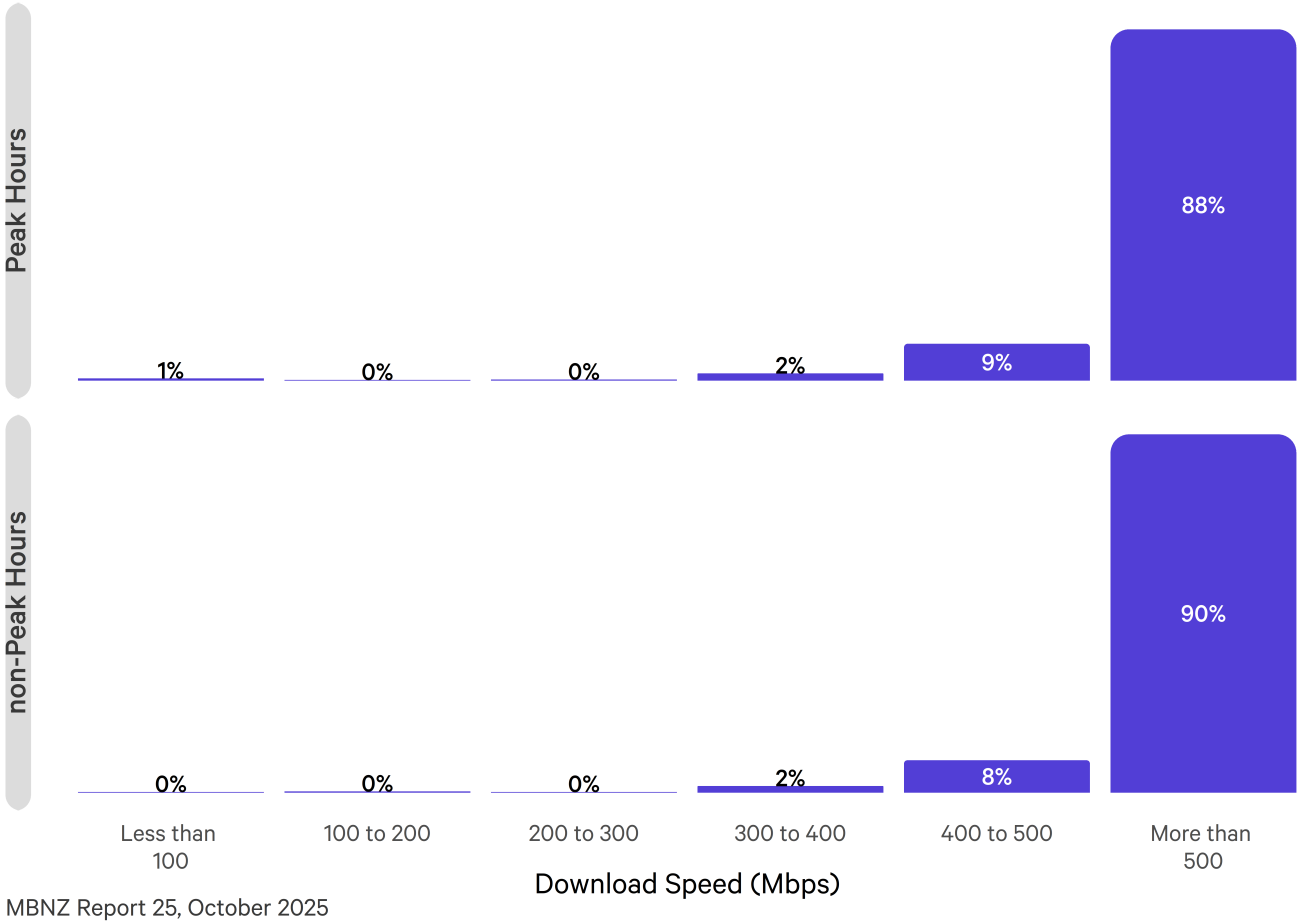
- 82% of speed tests run over Fibre Max lines achieved download speeds above 900 Mbps during non-peak hours, compared to 78% during peak hours.

Distribution of Fibre 500 Results

Figure 7: Download Speeds on Fibre 500 Plans

Distribution of test results across 313 Fibre 500 households

Average (24/7) download speeds for Fibre 500 plans is 527 Mbps; this varies by RSP and over time.



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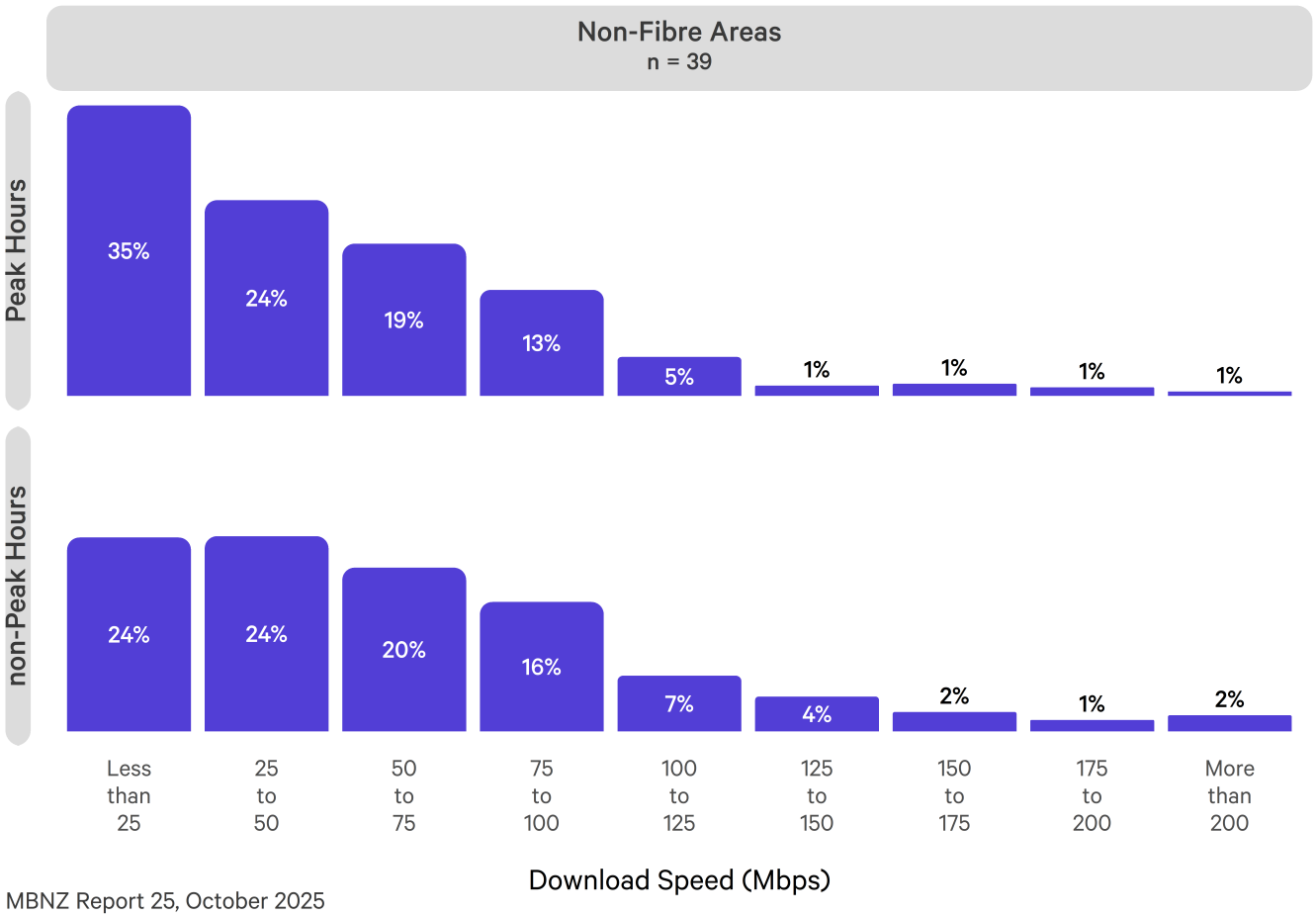
Key Observations

- 90% of speed tests run over Fibre 500 lines achieved download speeds above 500 Mbps during non-peak hours, compared to 88% during peak hours.

Distribution of 4G Fixed Wireless Results

Figure 8: Download Speeds on 4G Fixed Wireless Plans

Distribution of test results. Average (24/7) download speeds for 4G Fixed Wireless plans is 58 Mbps in non-Fibre areas and 57 Mbps across all areas; this varies by RSP and over time.



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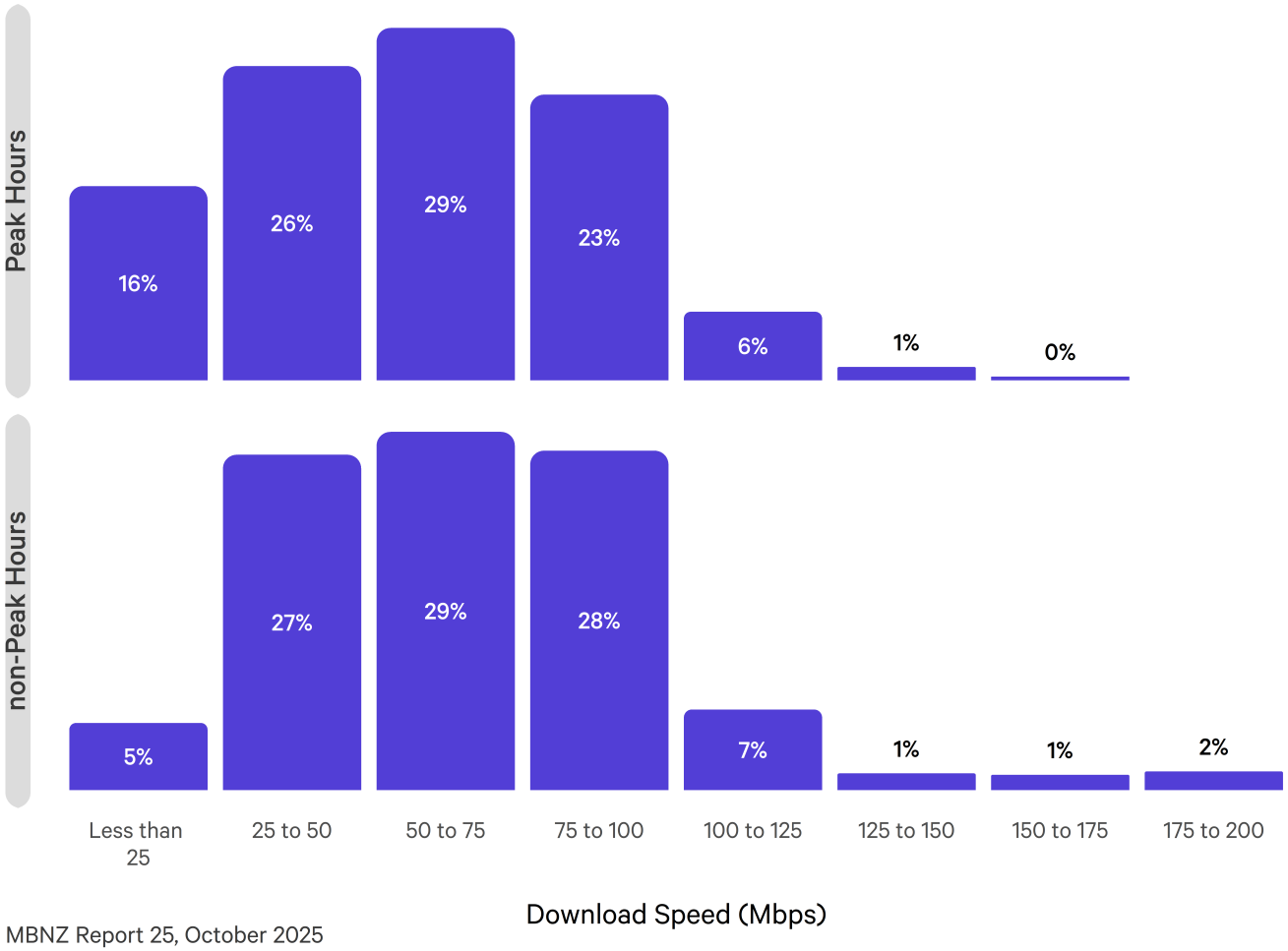
Key Observations

- 24% of speed tests run over Fixed Wireless lines achieve download speeds of less than 25 Mbps in non-Fibre areas during non-peak hours, compared to 35% during peak hours.

Distribution of WISP Fixed Wireless Results (Lightwire Only)

Figure 9: Download Speeds on WISP Fixed Wireless Plans (Lightwire Only)

Distribution of test results.



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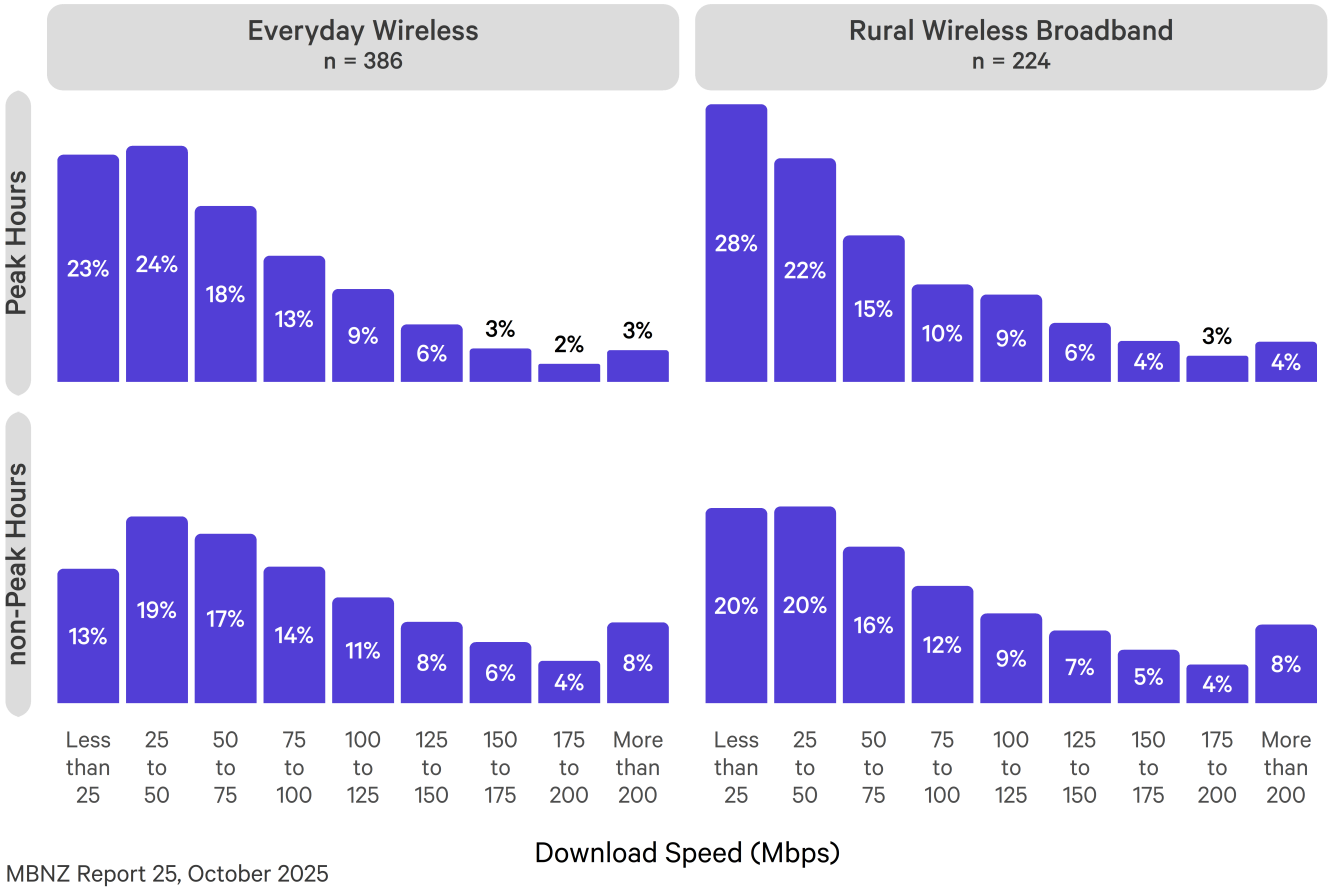
Key Observations

- 5% of speed tests run over Fixed Wireless lines achieve download speeds of less than 25 Mbps during non-peak hours, compared to 16% during peak hours.

Distribution of Spark Embedded Fixed Wireless Results

Figure 10: Download Speeds on Spark Embedded 4G Fixed Wireless Plans

Distribution of test results.



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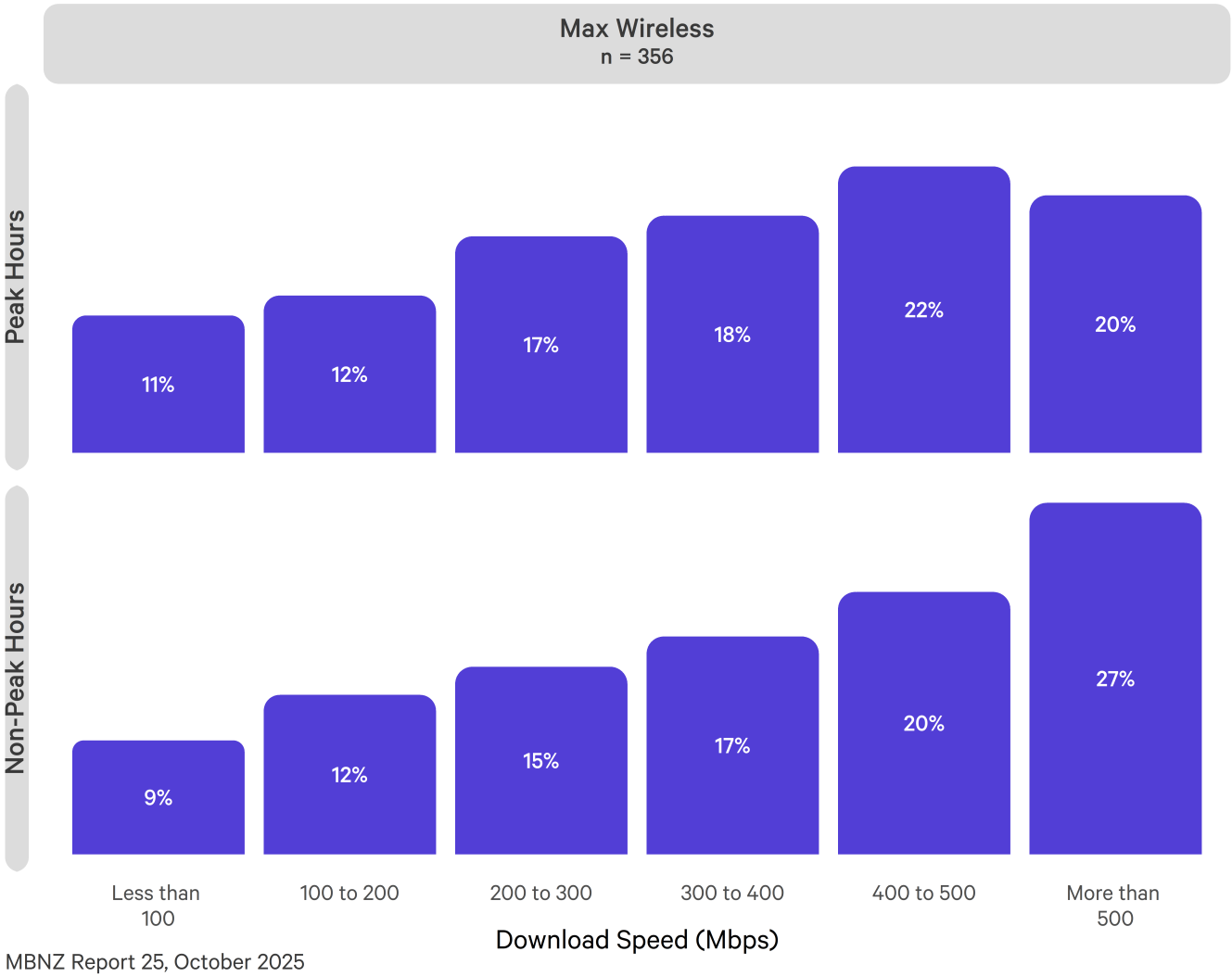
Key Observations

- During non-peak hours, 37% of download tests for Everyday Wireless and 33% for Rural Wireless Broadband achieved speeds above 100 Mbps. During peak hours, the percentage of tests over 100 Mbps for Everyday Wireless fell to 23%, and Rural Wireless Broadband also saw the percentage fall to 26%.
- For both plans, the percentage of tests below 25 Mbps increased during peak hours compared to non-peak hours. For Everyday Wireless plans, the percentage rose from 13% to 23%, and for Rural Wireless plans, it also increased from 20% to 28%.
- During non-peak hours, both plans had 8% of tests achieve speeds over 200 Mbps. However, during peak hours, the percentage of tests fell to just 3% for Everyday Wireless, and 4% for Rural Wireless.

Figure 11: Download Speeds on Spark Embedded 5G Fixed Wireless Plan

Distribution of download test results.



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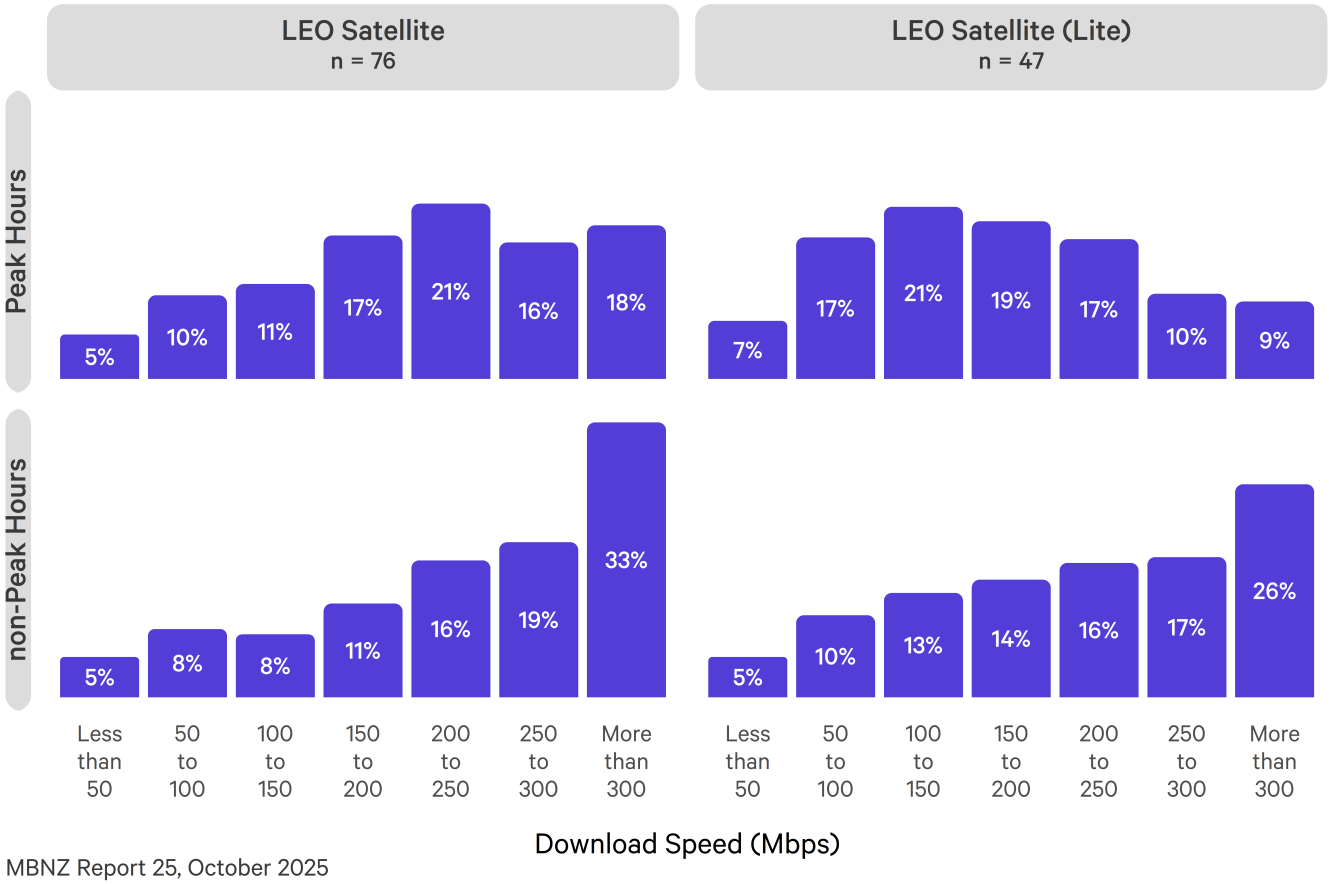
Key Observations

- The distribution of download tests for Spark 5G Max Wireless was broadly similar during peak hours compared to non-peak hours.
- During non-peak hours, 9% of tests resulted in download speeds below 100 Mbps, while during peak hours this figure rose to 11%.
- 64% of tests run during non-peak hours achieved download speeds above 300 Mbps. This decreased slightly to 60% during peak hours.
- During non-Peak hours, 27% of all embedded download speed tests run on Max Wireless plans achieved speeds greater than 500 Mbps.

Distribution of LEO Satellite Results

Figure 12: Download Speeds on LEO Satellite Plans

Distribution of test results across LEO Satellite households. Average (24/7) download speeds for LEO Satellite plans average 243 Mbps in non-Fibre areas on Starlink's Residential plan and 216 Mbps on their Residential Lite plan; this varies over time.



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Key Observations

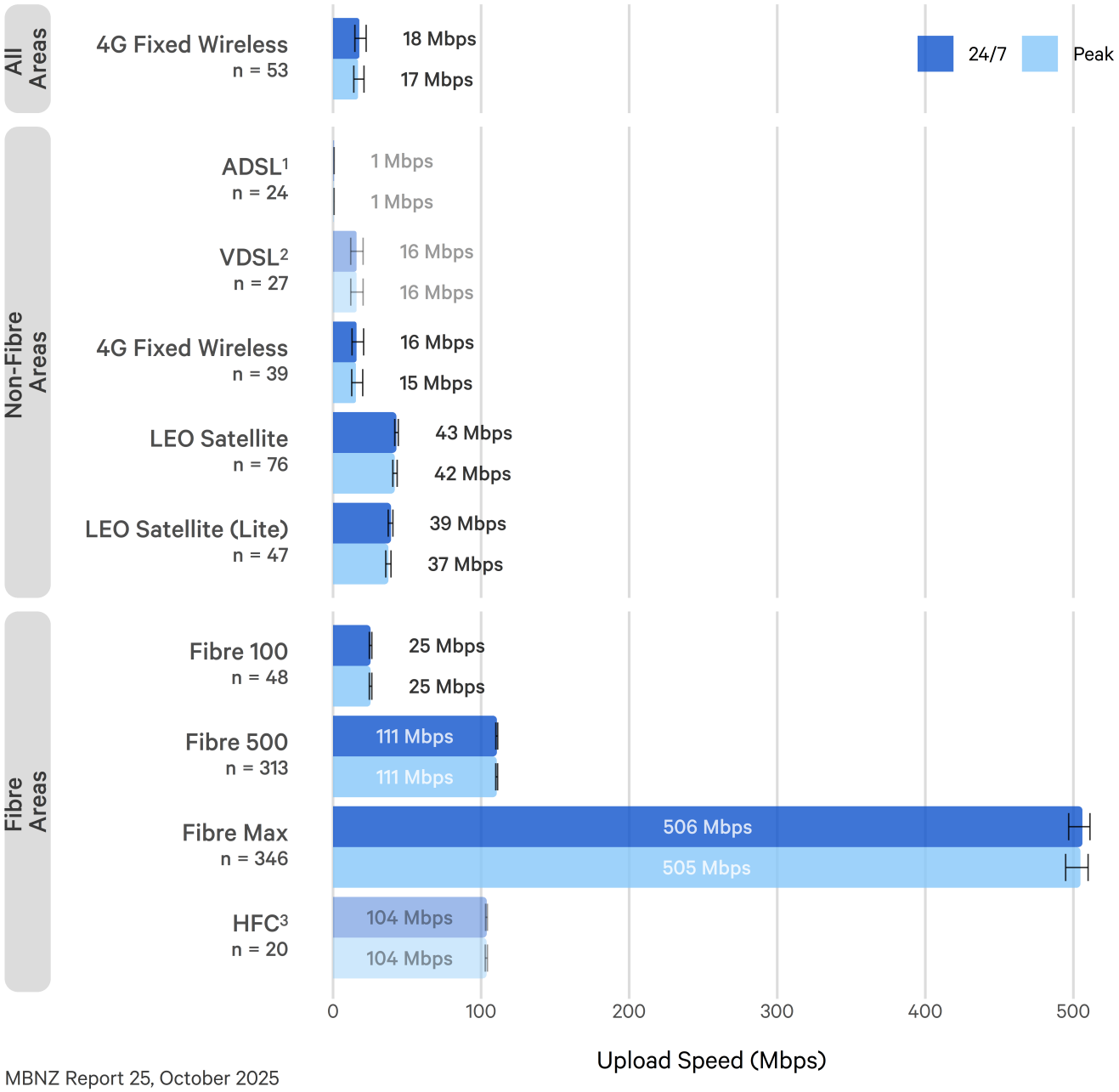
- Only 5% of speed tests run over Starlink's Residential and Residential Lite plans achieved download speeds of less than 50 Mbps. During peak hours, this increased to 5% for the Residential plan, and 7% for the Residential Lite plan.
- During non-peak hours, 33% of download speed tests for the Residential plan reached speeds of 300 Mbps or higher, compared to 26% for the Residential Lite plan. Traffic for the Residential Lite service is deprioritised over the Residential service during peak hours.

Speed Tests - Upload

Upload speeds should be considered alongside download speeds. The main applications where the impact of upload speed is apparent are file transfers and video conferencing. For example, a lower upload speed will mean that it takes longer for files to sync or email attachments to be applied.

Figure 13: Average Upload Speeds by Plan

Average (24/7) of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm. The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 53). Error bars show 95% confidence intervals of the mean.



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[1] Results for ADSL are based on a sample size of 24 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 27 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

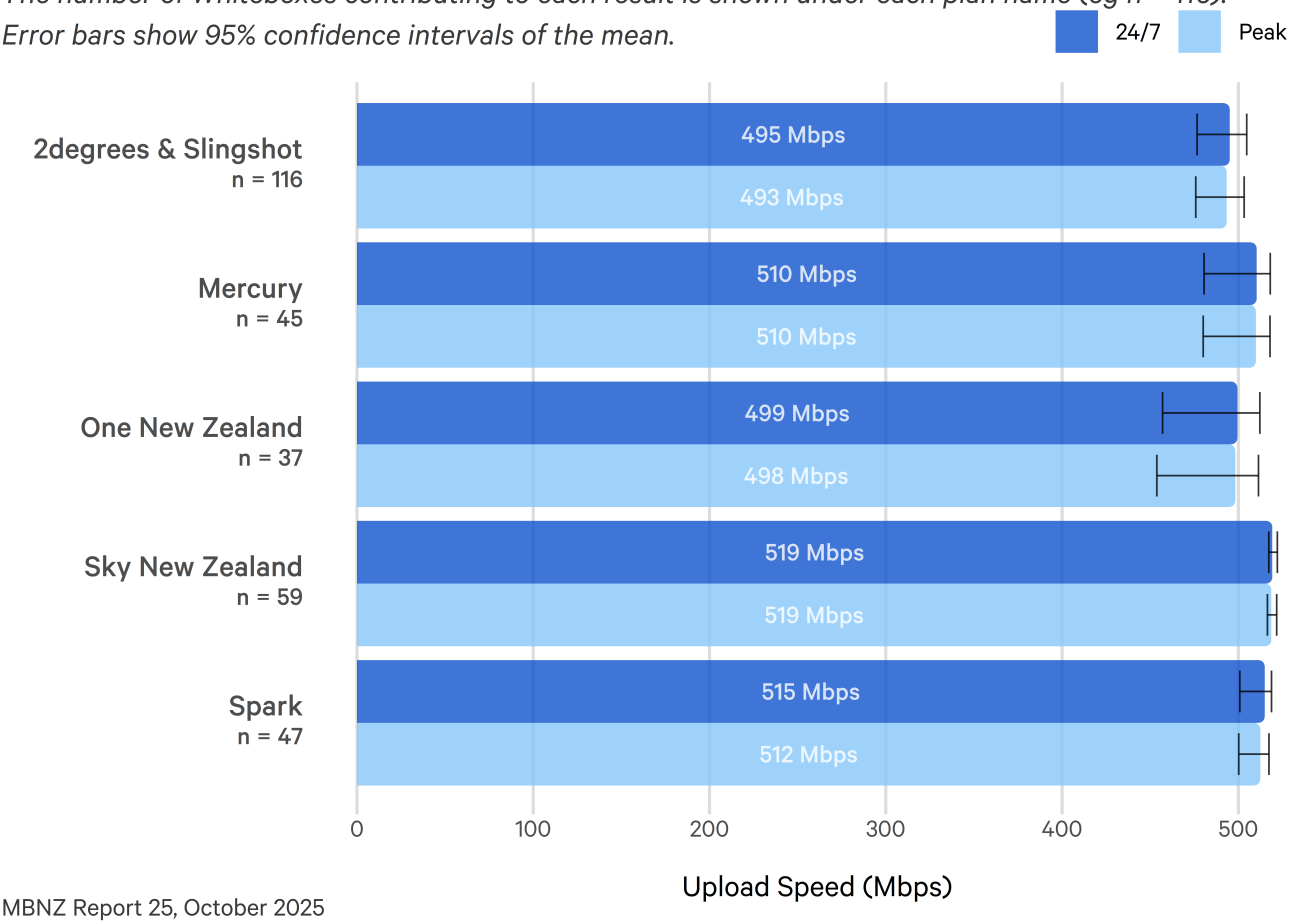
Key Observations

- The average upload speeds are broadly consistent for all technologies with those seen in the previous report.
- Fibre 100 (previously Fibre 50) upload results are included for the first time. Average upload speeds for the Fibre 100 plan are 25 Mbps during both peak and non-peak hours. The typically advertised upload speed for Fibre 100 plans is 20 Mbps.

Fibre Max Breakdown by RSP

Figure 14: Average Fibre Max Upload Speed by RSP

Average of monthly household averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 116).
Error bars show 95% confidence intervals of the mean.



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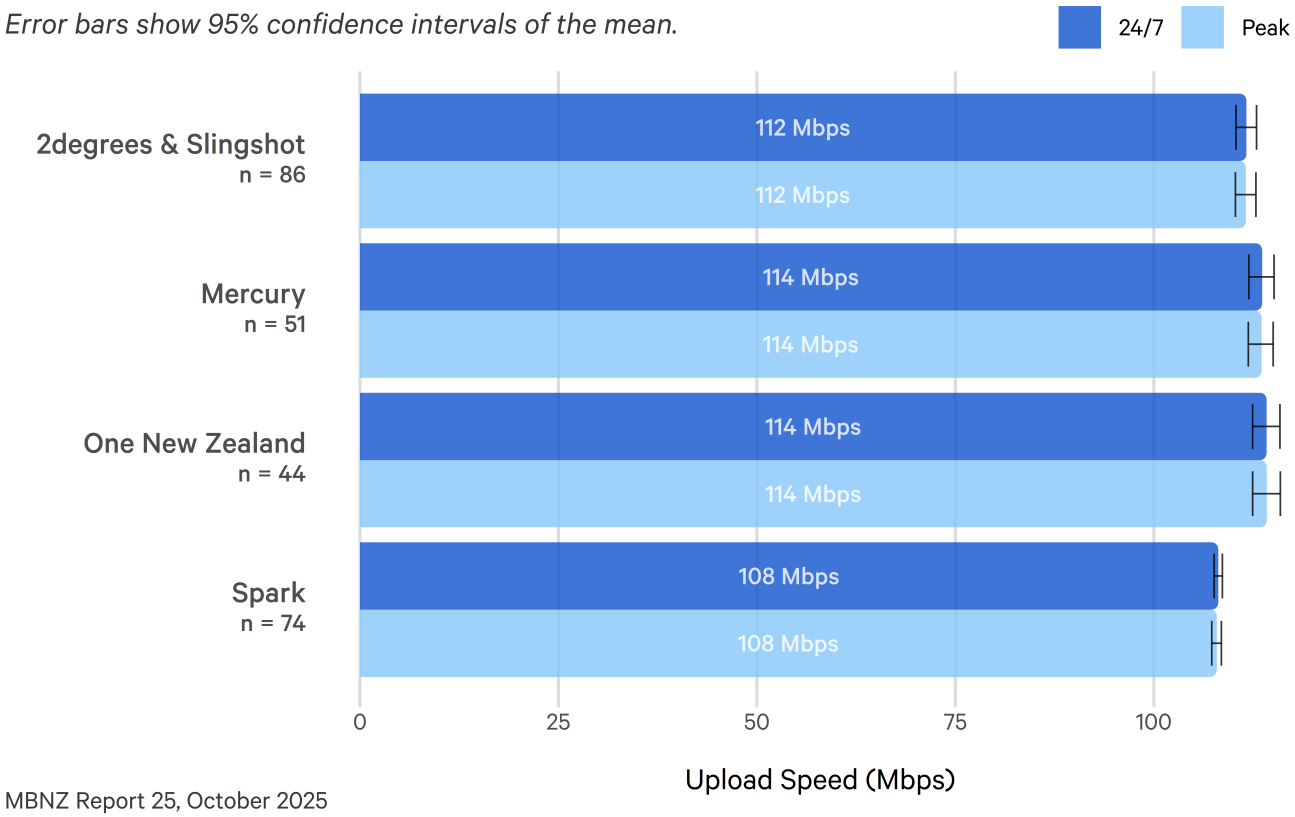
Key Observations

- All RSPs achieved average upload results above 490 Mbps, with Mercury, Sky New Zealand and Spark achieving average speeds above 500 Mbps.
- Upload speeds were consistent during peak hours, with all RSPs only showing the same or a very small decrease in speed compared to their all hours result.
- There were not enough Fibre Max volunteers on Contact Energy, Electric Kiwi, PureLink, Voyager or WorldNet Services during the measurement period to report results for these RSPs. All tested RSPs are included in the overall Fibre Max results shown in Figure 13.

Fibre 500 Breakdown by RSP

Figure 15: Comparison of Average Fibre 500 Upload Speeds across RSPs

Average of monthly household averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 86)
Error bars show 95% confidence intervals of the mean.



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Key Observations

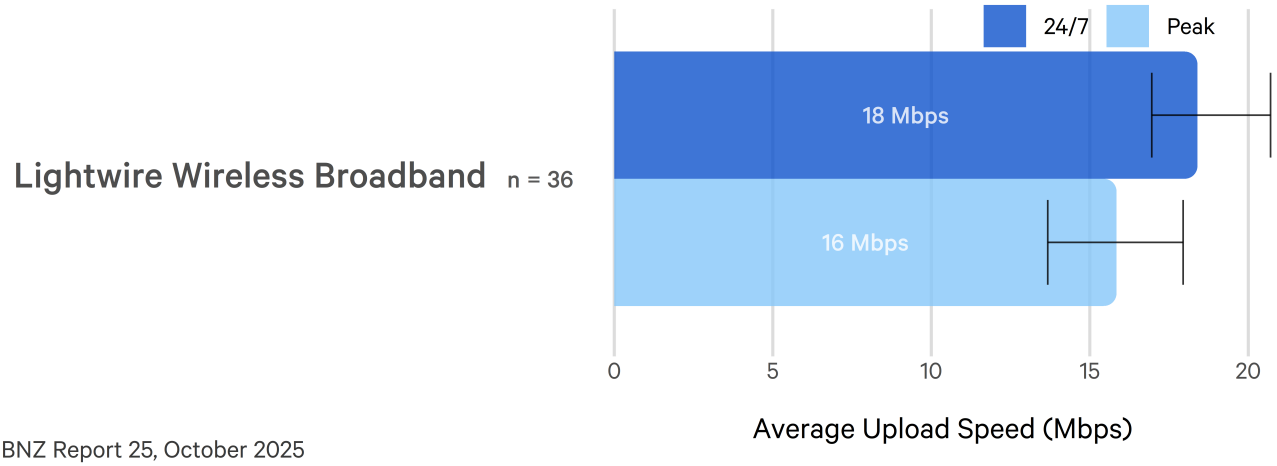
- All RSPs achieved average upload results above 100 Mbps.
- Upload speeds were consistent during peak hours, with no noticeable drop compared to average upload speeds across all hours.
- There were not enough volunteers on Contact Energy, Electric Kiwi, Inspire Net, Sky New Zealand, Ultimate Broadband, Voyager or Wireless Nation to report results. All tested RSPs are included in the overall Fibre 500 results shown in Figure 1.

WISP Fixed Wireless Upload Speeds

The results below are for Lightwire's WISP plan. Overall performance results for WISP plans are not available due to a small sample size. More information on WISP results can be found on page 15.

Figure 16: Average Upload Speeds for WISP Fixed Wireless Plans

Average of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of embedded agents contributing to each result is shown under each plan name (eg n = 36).
Error bars show 95% confidence intervals of the mean.



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Key Observations

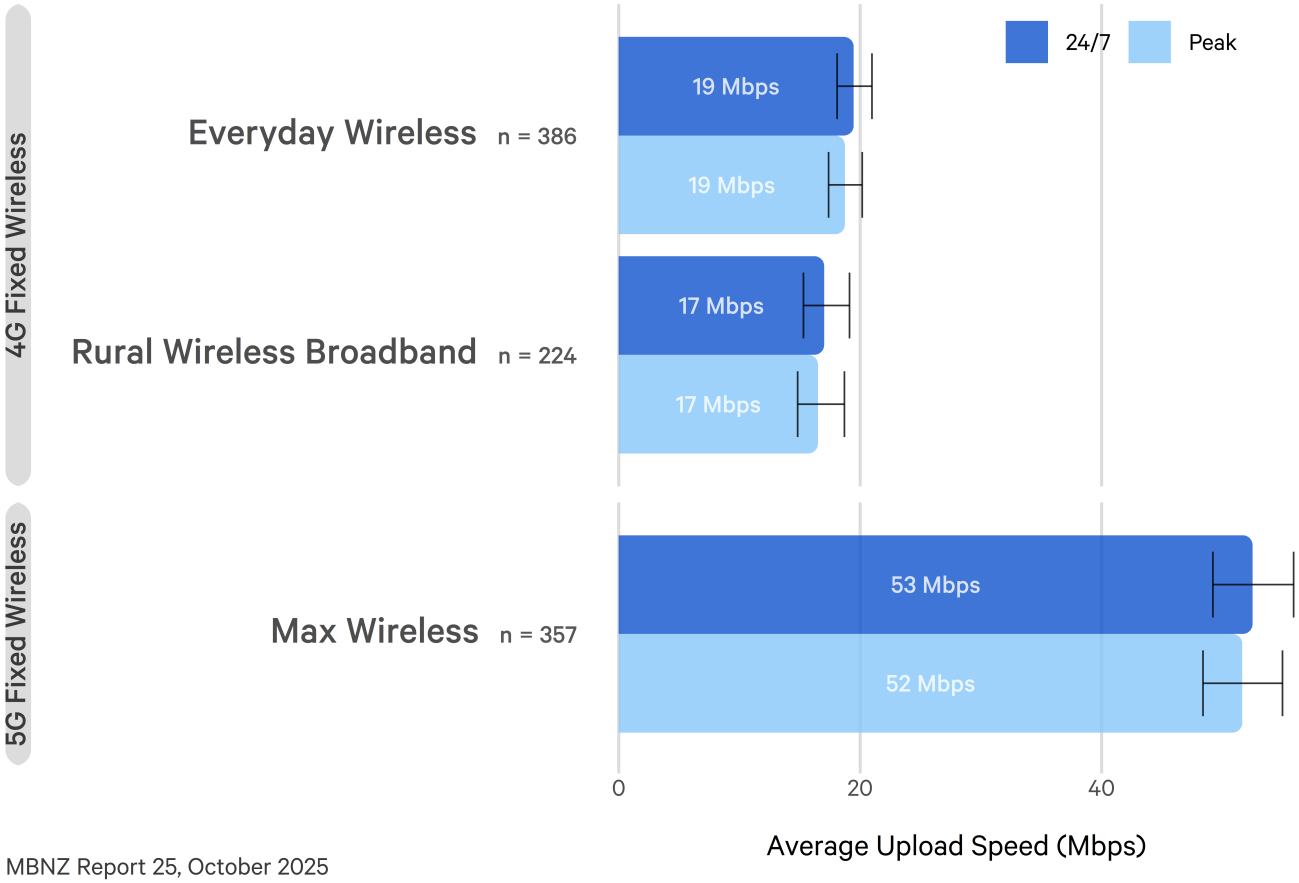
- The average upload speeds for Lightwire's Wireless Broadband plan was 18 Mbps, with a small decrease during peak hours.
- These results are similar to the average upload speeds across all 4G Fixed Wireless plans and RSPs in NZ, which is 18 Mbps during all hours.

Spark Fixed Wireless Embedded Upload Speeds

The results below are for some of Spark's 4G Fixed Wireless and 5G Fixed Wireless plans. More information on Spark's embedded testing can be found on page 16.

Figure 17: Average Upload Speeds for Spark Fixed Wireless Plans

Average of monthly household weighted averages. Peak hours are Monday - Friday, 7pm - 11pm.
The number of embedded agents contributing to each result is shown under each plan name (eg n = 386).
Error bars show 95% confidence intervals of the mean.



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Key Observations

- There is minimal difference in average upload speeds between Spark 4G Everyday Wireless and Rural Wireless Broadband, with both plans seeing no noticeable decrease in upload speeds during peak hours.
- The average upload speed measured for Spark's Max Wireless 5G Plan was 53 Mbps during all hours, showing no noticeable decrease during peak hours.

Latency

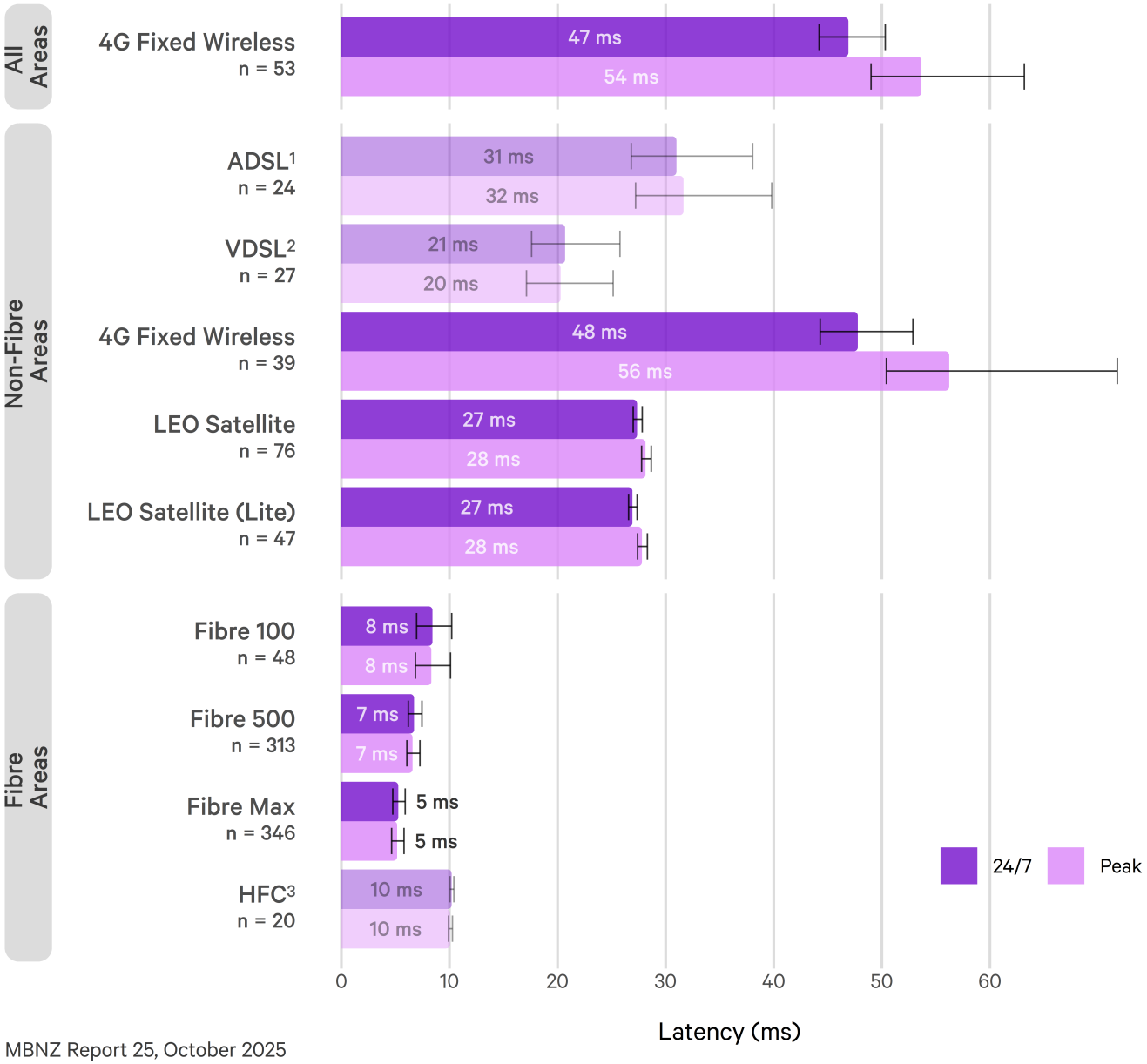
Latency is another key factor that should be considered when assessing broadband performance. The time it takes to transmit and receive messages between households and servers limits the responsiveness of realtime applications such as interactive webpages or video calls. Higher baseline latency makes realtime applications more vulnerable to jitter (also known as packet delay variation) and dropouts. Figure 18 only includes results relating to servers hosted in New Zealand.

The latency results shown below use results from snapshots of hourly testing compared to continuous monitoring. More information on this change can be found above on page 5. This change also allows us to include comparable latency results for embedded Fixed Wireless plans, which uses an identical hourly testing methodology, and can be seen on page 35 in Figure 20.

Some plans show a wider variation of latency than others: latency across a Fixed Wireless connection will generally be more variable than over a Fibre line.

Figure 18: Average Latency to Test Servers by Plan

Lower is better. Average of monthly household weighted averages.
Peak hours are Monday - Friday, 7pm - 11pm.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 53).
Error bars show 95% confidence intervals of the mean.



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Key Observations

- Idle latency over Fixed Wireless is higher than over Copper (ADSL, VDSL), HFC, or Fibre (Fibre 100, Fibre 500, Fibre Max). Fibre is faster due to both the lower latency over Fibre optics and the more modern infrastructure that underpins the Fibre network.

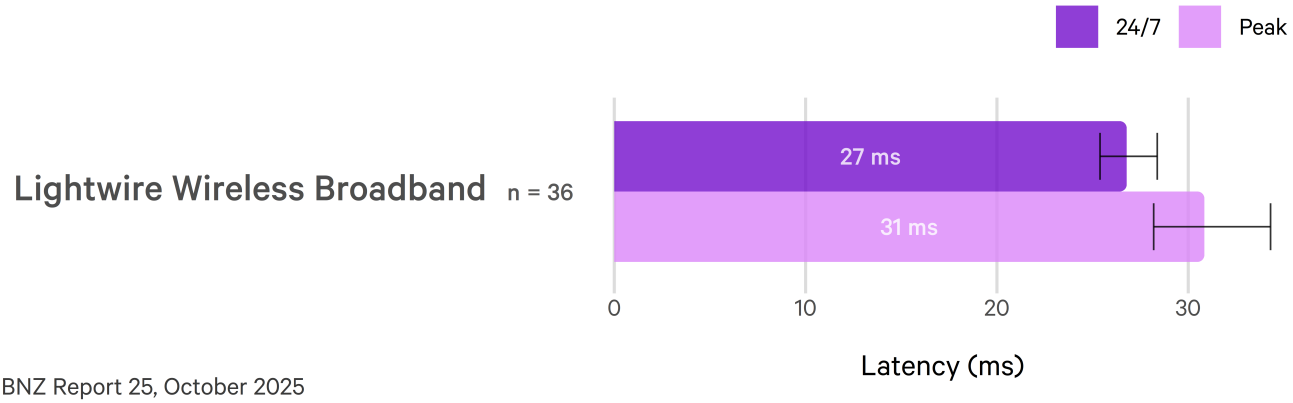
[1] Results for ADSL are based on a sample size of 24 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 27 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

WISP Fixed Wireless Latency

The results below are for Lightwire's WISP plan. Overall performance results for WISP plans are not available due to a small sample size. More information on WISP results can be found on page 15.

Figure 19: Average Latency to Test Servers for WISP Fixed Wireless Plans

Lower is better. Average of monthly household weighted averages.
Peak hours are Monday - Friday, 7pm - 11pm.
The number of embedded agents contributing to each result is shown under each plan name (eg n = 36).
Error bars show 95% confidence intervals of the mean.



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Key Observations

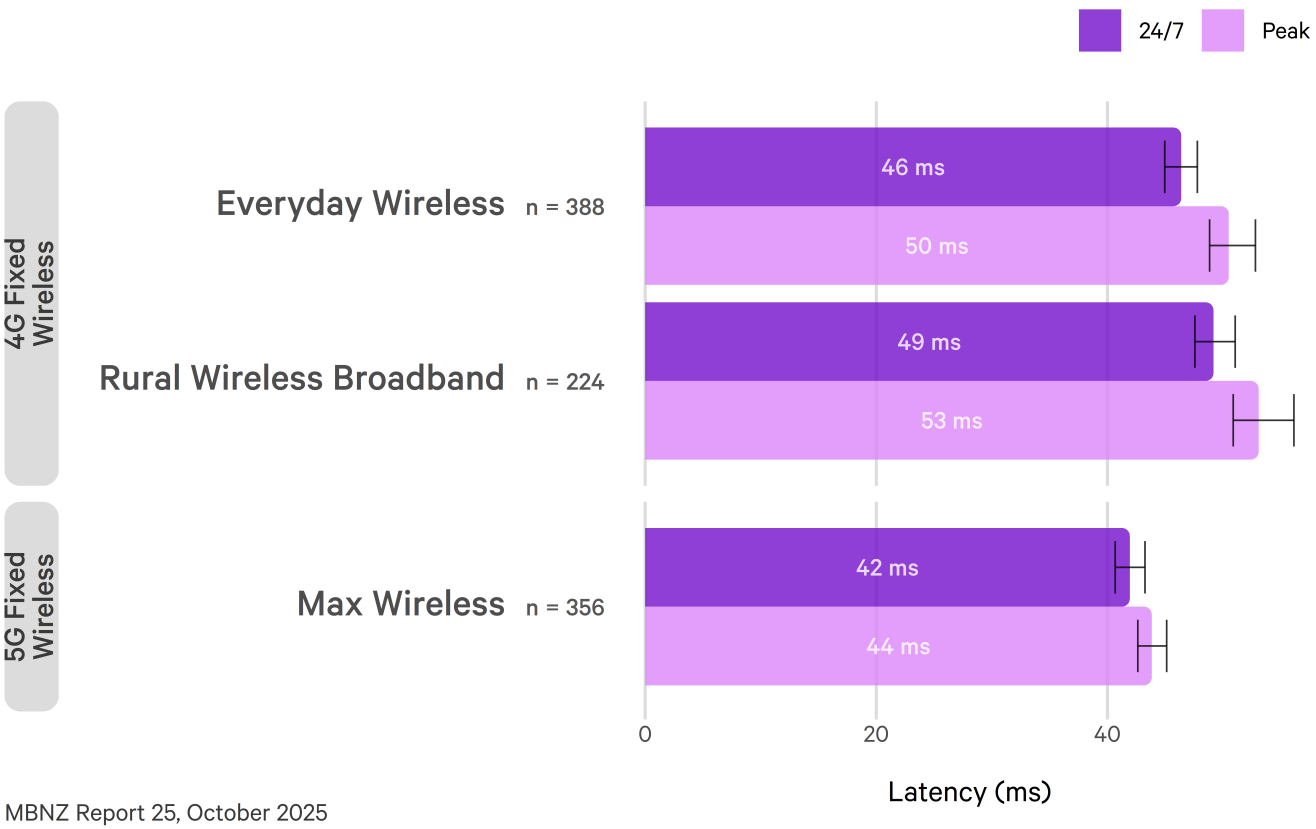
- Average latency across all 4G Fixed Wireless plans and RSPs in NZ is 47 ms during all hours. Average results for Lightwire's Wireless Broadband plan measured slightly below the average latency we see for 4G Fixed Wireless across all RSPs.

Spark Fixed Wireless Embedded Latency

The results below are for some of Spark's 4G Fixed Wireless and 5G Fixed Wireless plans. More information on Spark's embedded testing can be found on page 15.

Figure 20: Average Latency to Test Servers for Spark Fixed Wireless Plans

Lower is better. Average of monthly household weighted averages.
Peak hours are Monday - Friday, 7pm - 11pm.
The number of embedded agents contributing to each result is shown under each plan name (eg n = 388).
Error bars show 95% confidence intervals of the mean.



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Key Observations

- Average latency across all 4G Fixed Wireless plans and RSPs in NZ is 47 ms during all hours. Average results for the Spark 4G plans measured are in line with the average latency we see for all RSPs.
- There is no noticeable difference in latency results between Spark's 4G and 5G Fixed Wireless plans.

Responsiveness

The responsiveness test measures the bufferbloat when the broadband connection is heavily utilised (by the way of a speed test run in parallel). This is representative of user experience in busy households as it shows the impact of downloading or uploading data to the internet (e.g. watching Netflix or uploading a file) on application responsiveness (e.g. how long a webpage takes to load).

The chart shows the estimated maximum bufferbloat (defined as the 99th percentile latency in a regular flow of HTTP traffic) under idle conditions and during periods of maximum downstream or upstream load.

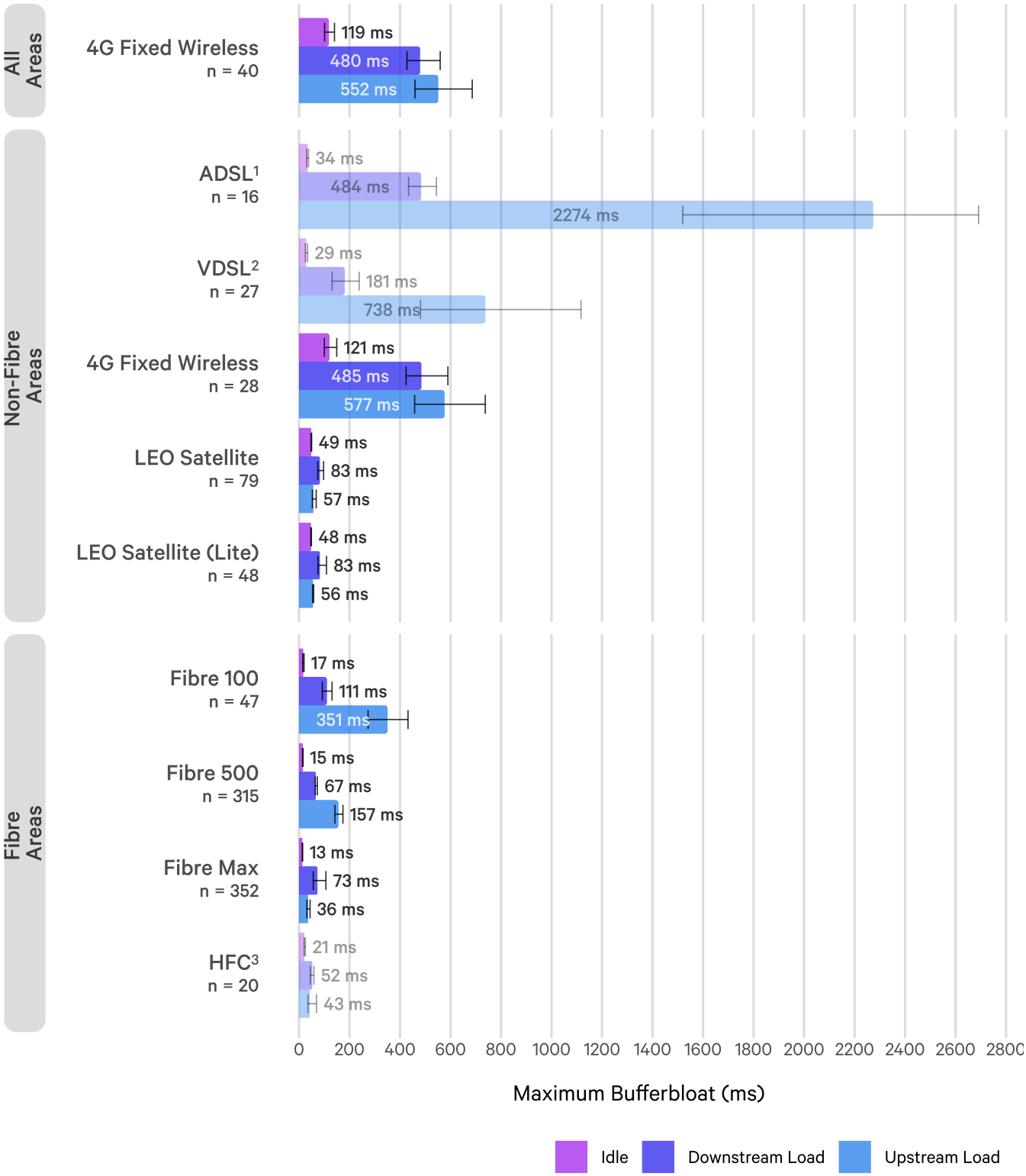
It is expected that the router model will be a factor in any latency rise, as the test is measuring what is known as bufferbloat, which is where the router or other network devices on the path are buffering large amounts of data. As such, differences in technology and router models will result in different results for the user.

The idle latency results presented in this chart are measuring latency at the application layer. While they may appear similar to the idle latency results in Figure 18 or 19, these results should not be directly compared as they employ a different testing frequency and methodology. They should also not be directly compared to the previously used 'Latency Under Load' chart appearing in previous reports for the same reasons.

Figure 21: Maximum Bufferbloat under Idle, Downstream and Upstream Load Conditions to Test Servers by Plan

Lower is better. Averages of monthly household medians.

The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 40).



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[1] Results for ADSL are based on a sample size of 16 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

[2] Results for ADSL are based on a sample size of 16 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Key Observations

- All plans see bufferbloat increase when the line is running upload or download tests compared to when the line is idle. This is more noticeable across ADSL, VDSL and 4G Fixed Wireless plans than LEO Satellite, Fibre and HFC plans.
- Bufferbloat is higher under upstream load for the Fibre 500 plan compared to Fibre Max results. Fibre Max plans and HFC plans have broadly comparable bufferbloat results under load.
- LEO Satellite plans see a small increase in bufferbloat under downstream load. Bufferbloat under upstream load shows a smaller increase on idle bufferbloat for satellite plans. While idle bufferbloat for satellite is higher than for Fibre plans, under downstream and upstream load results are more comparable.

Disconnections

Realtime applications like video calls rely on a consistent connection between the home router and the target server. If the connection drops, even for a few seconds, the application will exhibit some form of stuttering. In the worst instance, a user might be disconnected and have to reconnect or wait for their broadband connection to come back online.

A brief disconnection very rarely means that, for example, a physical cable has been cut. Instead, the main reasons for network dropouts relate to congestion and the configuration of network equipment. The following chart compares daily disconnection rates across plans.

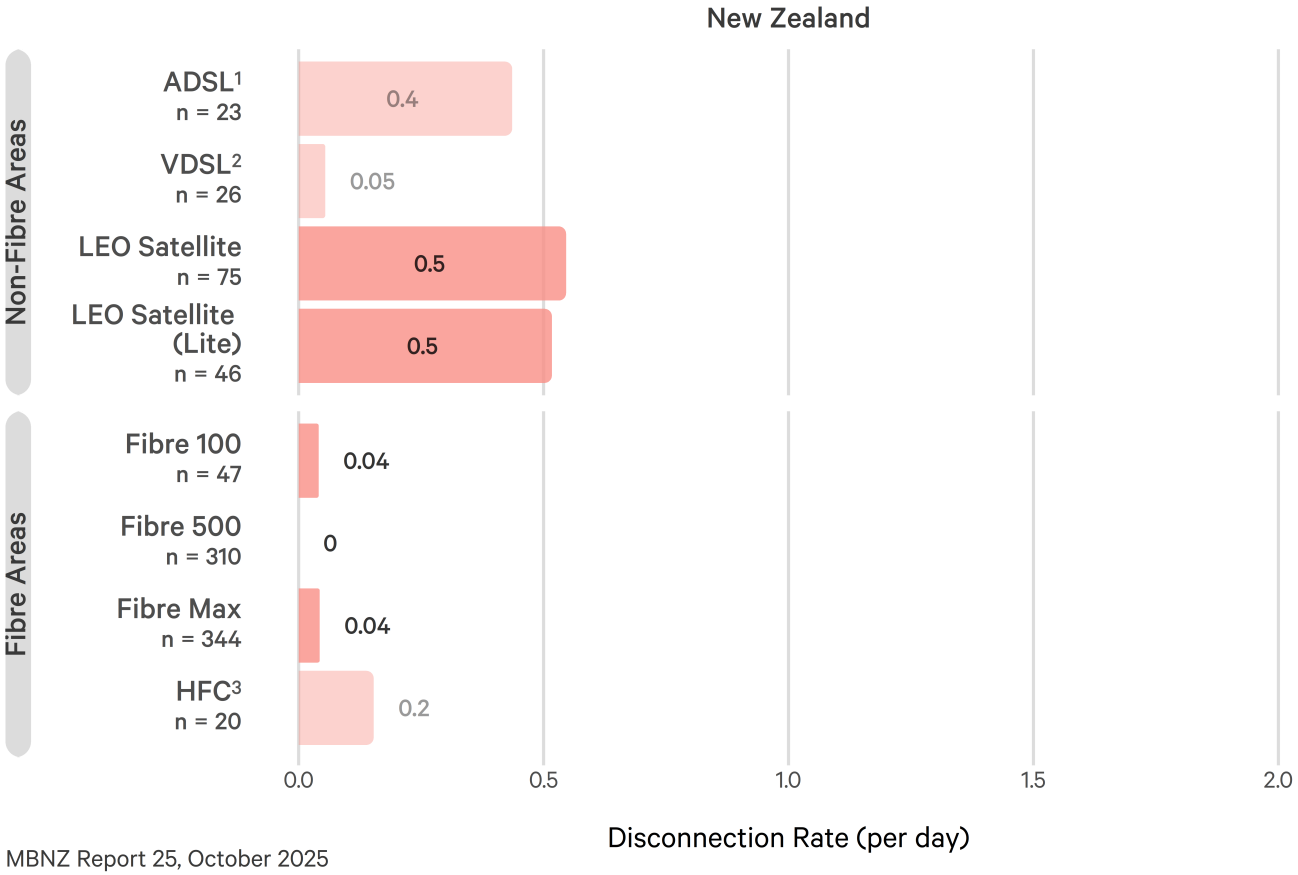
This chart shows medians across households which obscures the extremes of performance for each plan. Disconnection results for Fixed Wireless plans are not included in this report as they are no longer running the continuous latency measurement. More information on this change can be found above on page 5.

Many common applications, such as video conferencing applications or online gaming used by New Zealanders are served from overseas, mainly Australia, East Asia, and the USA. All New Zealand RSPs share capacity through four undersea cable networks which carry traffic to and from New Zealand across the Tasman Sea and the Pacific.

The second chart shows disconnections for all Fibre plans across RSPs. Overseas traffic can take different routes depending on the RSPs relationship with different peering providers. This can result in a difference between overseas disconnections across RSPs.

Figure 22: Median Daily Disconnection Rates to New Zealand Servers

Lower is better. Medians of household daily rates. Disconnections greater than 30 seconds. Testing only covers periods where the line is idle.



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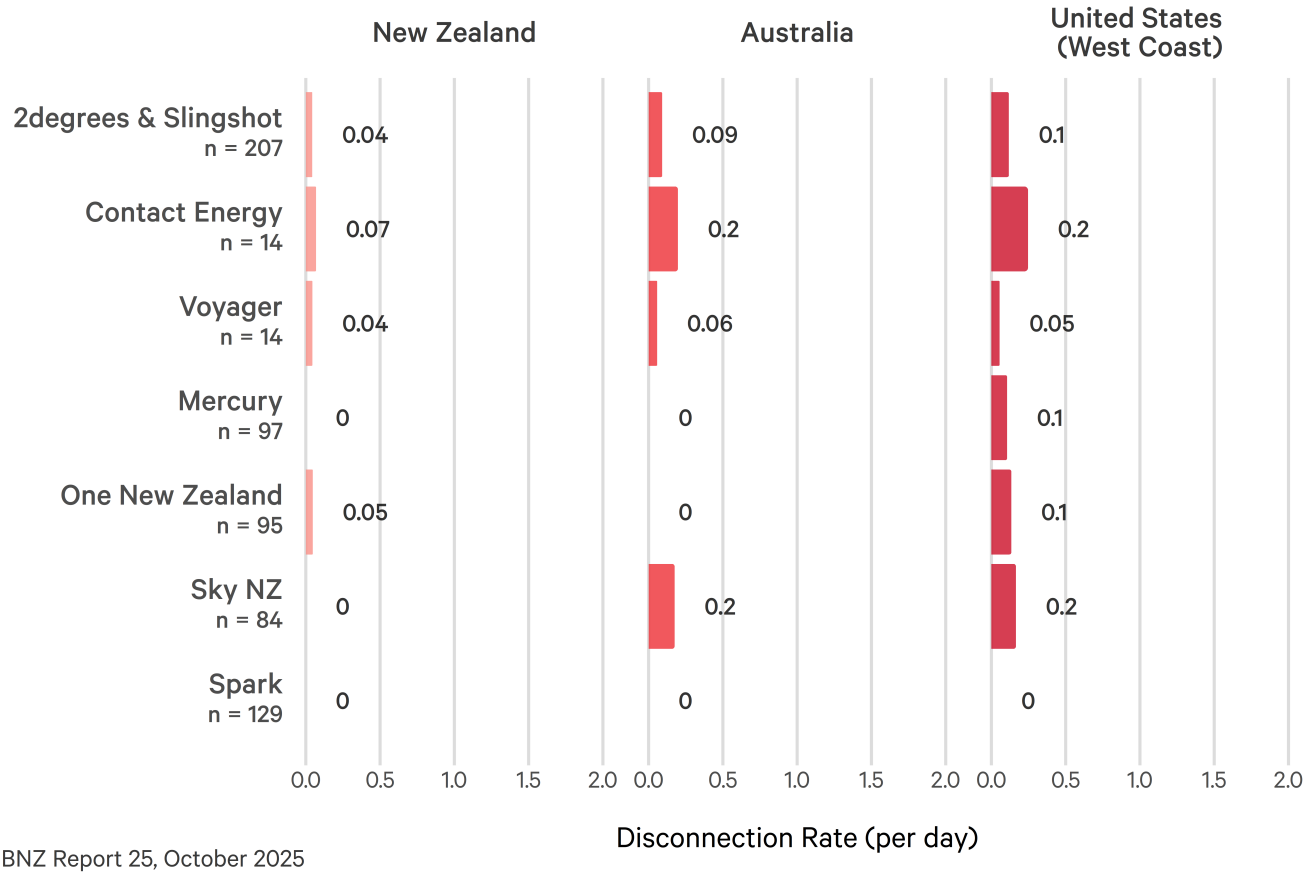
Key Observations

- This chart continues to categorise a disconnection as lasting longer than 30 seconds. This change aims to provide more consumer-relevant data as disconnections reported here are likely to be more noticeable to consumers. Most households now see a very low rate of noticeable disconnections, at least while the line is idle.
- There is a very low median rate of disconnection across Fibre plans. This rises slightly for HFC, and VDSL.
- Median disconnections for LEO Satellite plans are 0.5 to servers across New Zealand. This means that 50% of households will experience no more than 0.5 disconnections per day lasting over 30 seconds.

[1] Results for ADSL are based on a sample size of 23 Whiteboxes in non-Fibre areas. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 26 Whiteboxes in non-Fibre areas. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Figure 23: Median Daily Disconnection Rates to Overseas Servers

Lower is better. Fibre plans only. Medians of household daily rates. Disconnections greater than 30 seconds. Testing only covers periods where the line is idle.



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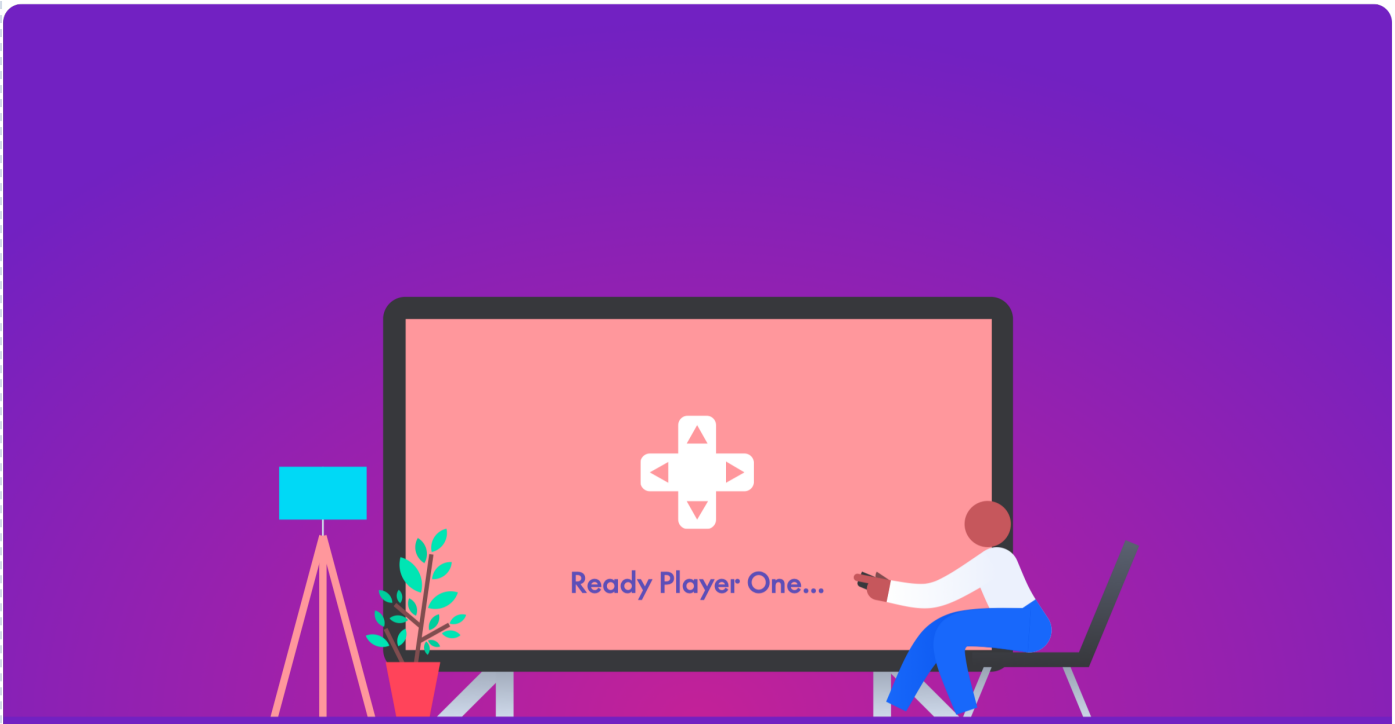
Key Observations

- All RSPs have low levels of disconnections to servers in New Zealand across their Fibre plans.
- Traffic going overseas is more likely to be lost than traffic remaining within New Zealand. All RSPs see a small increase in disconnections to Australia and the United States compared to New Zealand.



Application Performance

In this section we report on the performance of a number of common applications that consumers in New Zealand use on a regular basis.

Some results in this section are shown with error bars representing the 95% confidence interval for each plan. The transparent bars show plans with a sample size lower than we would typically include within reporting. These plans have larger error bars due to the smaller sample size and care should be taken when comparing these plans against others. We recommend consumers factor in the error bars when comparing plan averages, especially those with smaller sample sizes.

Netflix

Video streaming is a good example of an application where the quality of a user's experience is more affected by bandwidth (capacity) than by latency (lag). The Netflix measurement streams real video from the live Netflix service[1]. Traffic for this service is often delivered from within broadband provider's network to improve performance. The transparent screens show plans with a sample size lower than we would typically include within reporting.

[1] This test runs on an idle connection, results may be affected with simultaneous usage. HD is measured at 3 Mbps, and UHD at 15 Mbps in accordance with Netflix guidelines.

Figure 24:

% that can Reliably Stream HD & UHD Videos from Netflix during Peak Hours.

Plan					
4G Fixed Wireless All Areas, n = 55	UHD 62%	NETFLIX 36%	NETFLIX 15%	NETFLIX 9%	0-1 simultaneous UHD video streams
	HD 100%	HD 93%	HD 84%	HD 75%	4+ simultaneous HD video streams
ADSL[1] Non-Fibre Areas, n = 22	NETFLIX 14%	NETFLIX 0%	NETFLIX 0%	NETFLIX 0%	0 simultaneous UHD video streams
	HD 86%	HD 73%	HD 50%	NETFLIX 23%	1-2 simultaneous HD video streams
VDSL[2] Non-Fibre Areas, n = 26	UHD 96%	UHD 62%	NETFLIX 35%	NETFLIX 19%	1-2 simultaneous UHD video streams
	HD 100%	HD 100%	HD 100%	HD 96%	4+ simultaneous HD video streams
4G Fixed Wireless Non-Fibre Areas, n = 40	UHD 65%	NETFLIX 45%	NETFLIX 15%	NETFLIX 8%	0-1 simultaneous UHD video streams
	HD 100%	HD 92%	HD 82%	HD 78%	4+ simultaneous HD video streams
LEO Satellite Non-Fibre Areas, n = 65	UHD 95%	UHD 89%	NETFLIX 17%	NETFLIX 0%	1-2 simultaneous UHD video streams
LEO Satellite (Lite) Non-Fibre Areas, n = 38	UHD 97%	UHD 50%	NETFLIX 3%	NETFLIX 0%	0-1 simultaneous UHD video streams
Fibre 100 Fibre Areas, n = 45	UHD 100%	UHD 100%	UHD 100%	UHD 100%	4+ simultaneous UHD video streams
Fibre 500 Fibre Areas, n = 294	UHD 100%	UHD 100%	UHD 100%	UHD 100%	4+ simultaneous UHD video streams
Fibre Max Fibre Areas, n = 305	UHD 100%	UHD 100%	UHD 100%	UHD 100%	4+ simultaneous UHD video streams
HFC[3] Fibre Areas, n = 16	UHD 100%	UHD 100%	UHD 100%	UHD 100%	4+ simultaneous UHD video streams

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[1] Results for ADSL are based on a sample size of 22 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 26 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 16 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Key Observations

- During peak hours, 89% of LEO Satellite households on Starlink's Residential plan were able to stream 2 simultaneous UHD Netflix streams, compared to 50% on the Residential Lite plan.
- 100% of households on Fibre 100 were able to stream 4 simultaneous UHD Netflix streams. Prior to the Chorus upgrade, no households on Fibre 50 were able to support 4 simultaneous UHD streams.
- 100% of households on Fibre 500, Fibre Max and HFC plans achieved average download speeds able to support 4 simultaneous UHD Netflix streams.
- 62% of households on VDSL plans in non-Fibre areas were able to support 2 UHD streams, and 96% could support 4 simultaneous HD streams.
- For ADSL households in non-Fibre areas, 73% could support 2 simultaneous HD streams during peak hours.

Spark embedded results continue to mark the first insight into application performance for 5G Fixed Wireless technology within the MBNZ programme. Given that each RSP has different fixed wireless infrastructure, these results should not be directly compared across RSPs.

Figure 25:

Plan	% that can Reliably Stream HD & UHD Videos from Netflix during Peak Hours.				
Max Wireless All Areas, n = 253	UHD	UHD	UHD	UHD	4+ simultaneous UHD video streams
	98%	97%	94%	91%	

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Key Observations

- During peak hours, 91% of Spark units were able to support 4 simultaneous UHD Netflix streams.

Game Stores

Modern console games are delivered from online stores such as Steam, Xbox Live and PlayStation Network. These games can be tens or even hundreds of gigabytes so achieving high throughput from these stores is important to gamers. The game store measurement downloads a portion of a real game from three different game stores[1]. Results will depend on the content distribution networks (CDNs) that host the games, and can vary depending on your RSP and where the CDNs are located.

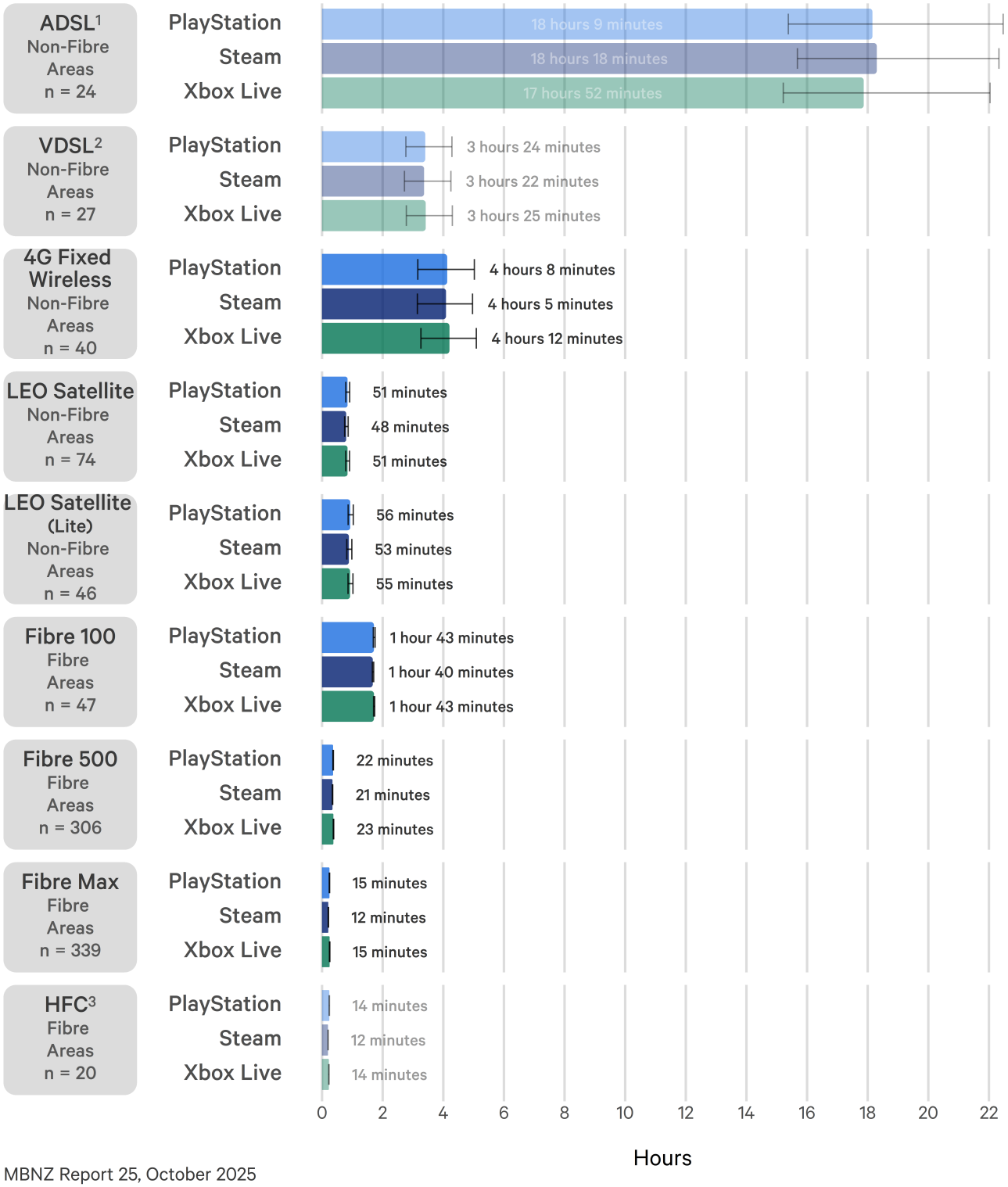
[1] This test runs on an idle connection, results may be affected with simultaneous usage.

Figure 26: Average Time Taken to Download Hogwarts Legacy by Plan during Peak Hours

Average time taken to download a file of 79.5 GB.

Average of household average download speed, lower is better.

The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 24).



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[1] Results for ADSL are based on a sample size of 24 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

[2] Results for VDSL are based on a sample size of 27 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Key Observations

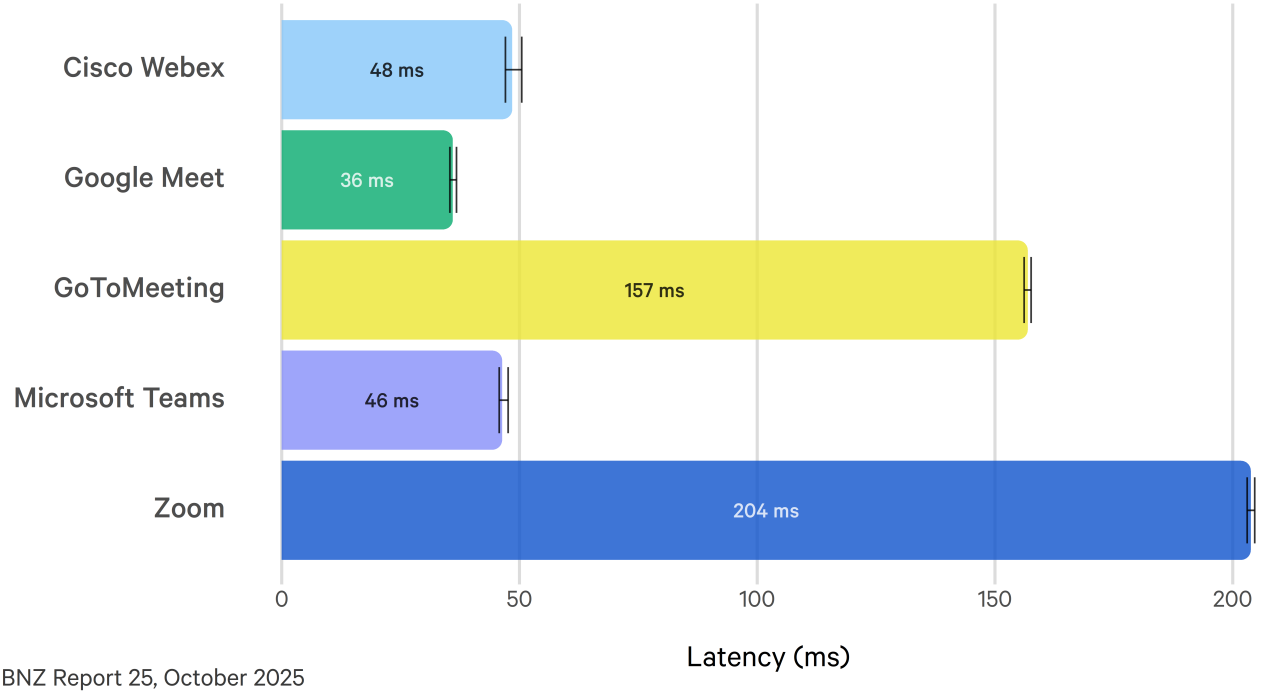
- Following the upgrade in download speeds for the Fibre 100 and Fibre 500 plans by Chorus, the average time taken to download Hogwarts Legacy decreased from 3 and a half hours to under 2 hours for households on Fibre 100, and from under 40 minutes to around 20 minutes for households on the Fibre 500 plan.
- Results for all other plans in this chart remain broadly consistent with those in the previous report.
- The average time taken to download Hogwarts Legacy was around 18 hours for ADSL plans across all game store providers. For VDSL this average was just under 4 hours and for 4G Fixed Wireless plans in non-Fibre areas this was just over 4 hours.
- LEO Satellite plans had average download speeds capable of downloading Hogwarts Legacy in just under 1 hour across both Starlink's Residential and Residential Lite plan.
- For Fibre Max and HFC Max plans, the download time was 15 minutes or less.

Video Conferencing

Latency is not the only factor impacting on the quality of a video call. Packet loss and jitter can result in stuttering and dropouts, and these are not captured in the round-trip times measured here. Application specific attributes such as audio/video encoding and proprietary communication protocols can lead to different performance characteristics for different services.

Figure 27: The Latency to Servers of Different Video Conferencing Services

Results are using free accounts only.
Average of household average latency, lower is better. Fibre plans only.



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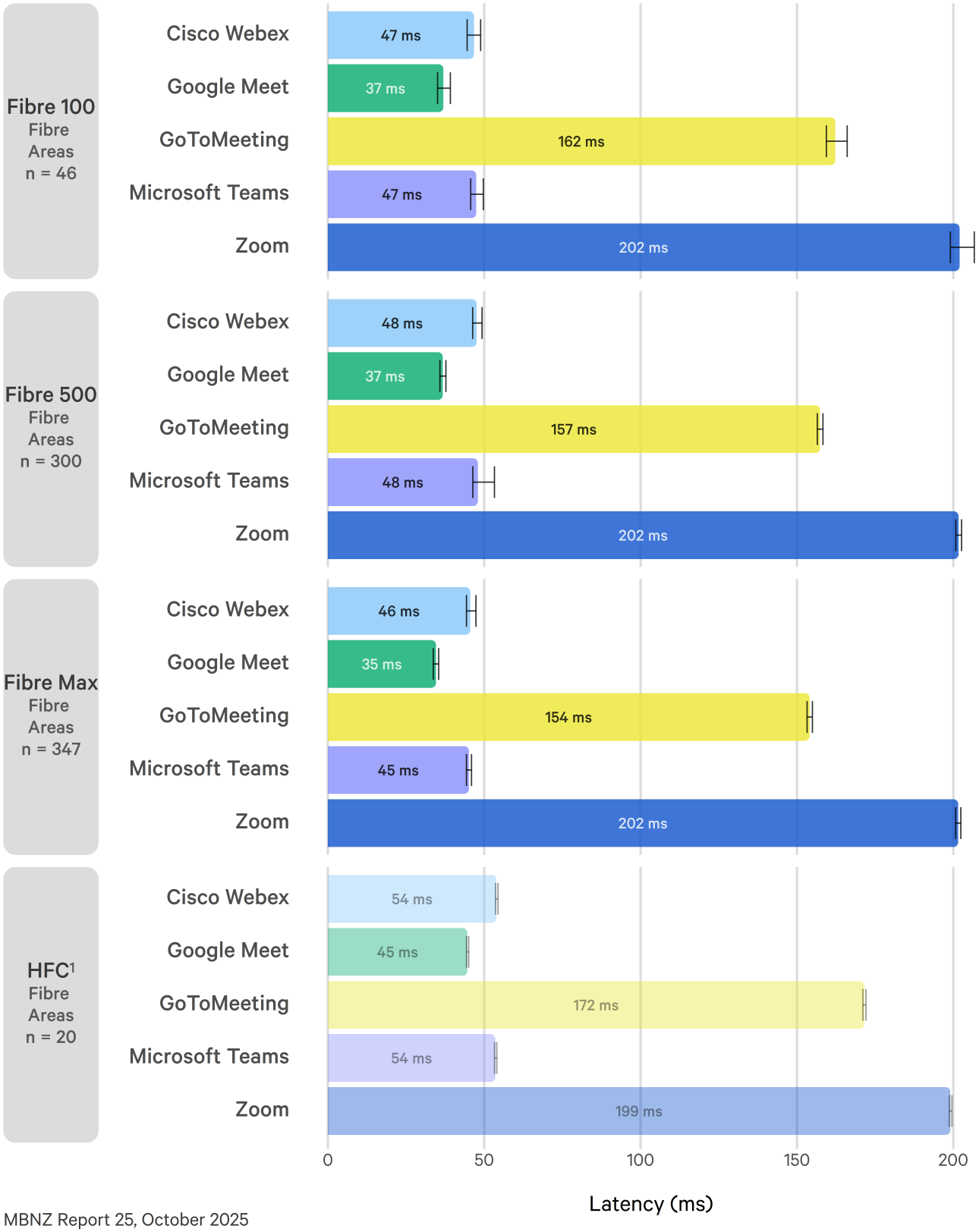
Key Observations

- Latency values for all video conferencing services remained consistent for Fibre plans compared to the previous report.
- Video conferencing services that use international servers usually see similar performance, however as the traffic is travelling further and subject to international routing, this could account for small differences in consumer experience like people talking over one another more frequently when using these unpaid services.
- The latency results above are shown for Fibre plans only. Results for video conferencing split by individual plans can be seen in the figure below, and results for all RSPs can be seen in Table 5.

Figure 28: The Latency to Servers of Different Video Conferencing Services by Plan

Fibre Areas only. Results are using free accounts only.
Average of household average latency, lower is better.
The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 46).



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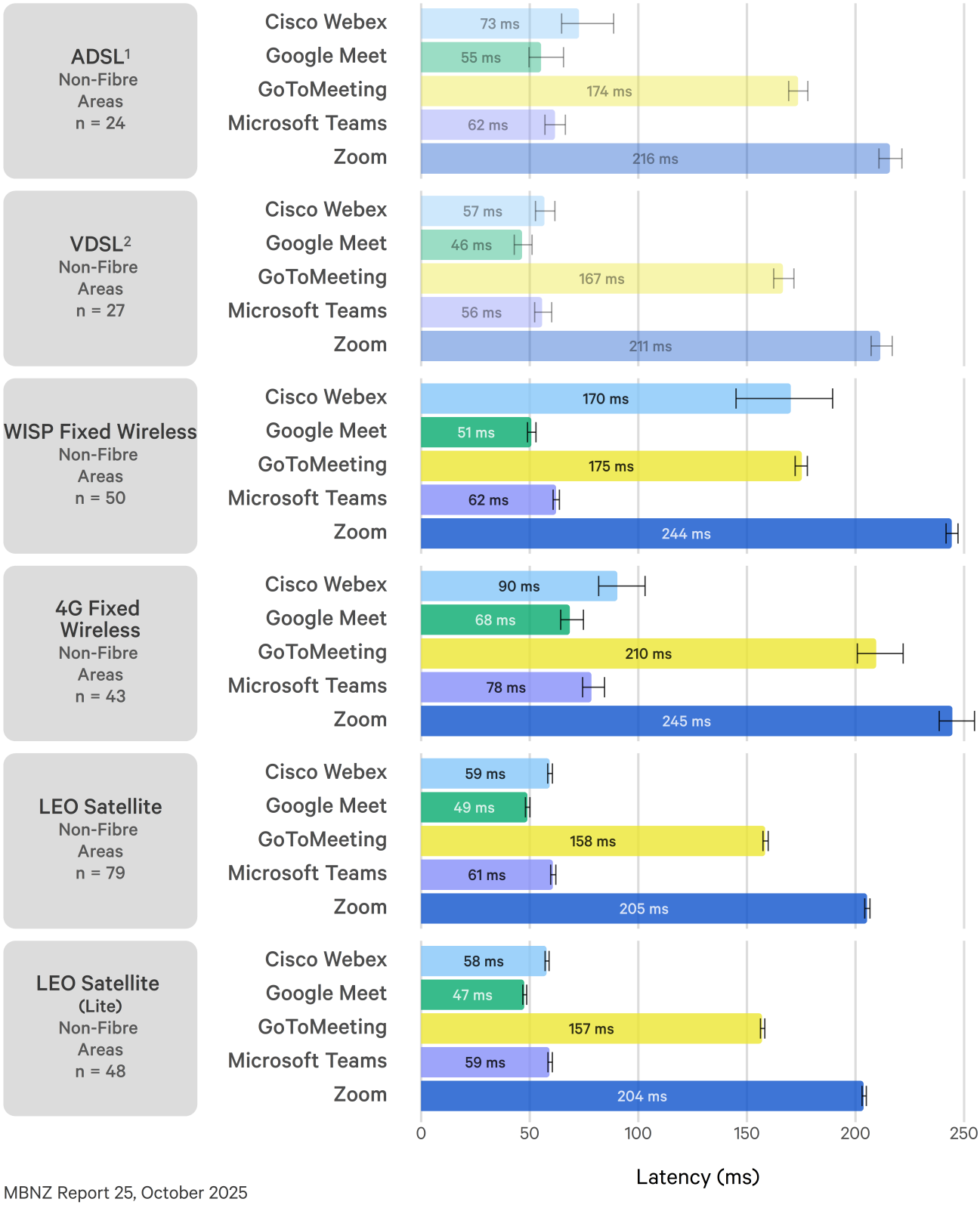
[1]Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.

Figure 29: The Latency to Servers of Different Video Conferencing Services by Plan

Fibre Areas only. Results are using free accounts only.

Average of household average latency, lower is better.

The number of Whiteboxes contributing to each result is shown under each plan name (eg n = 24).



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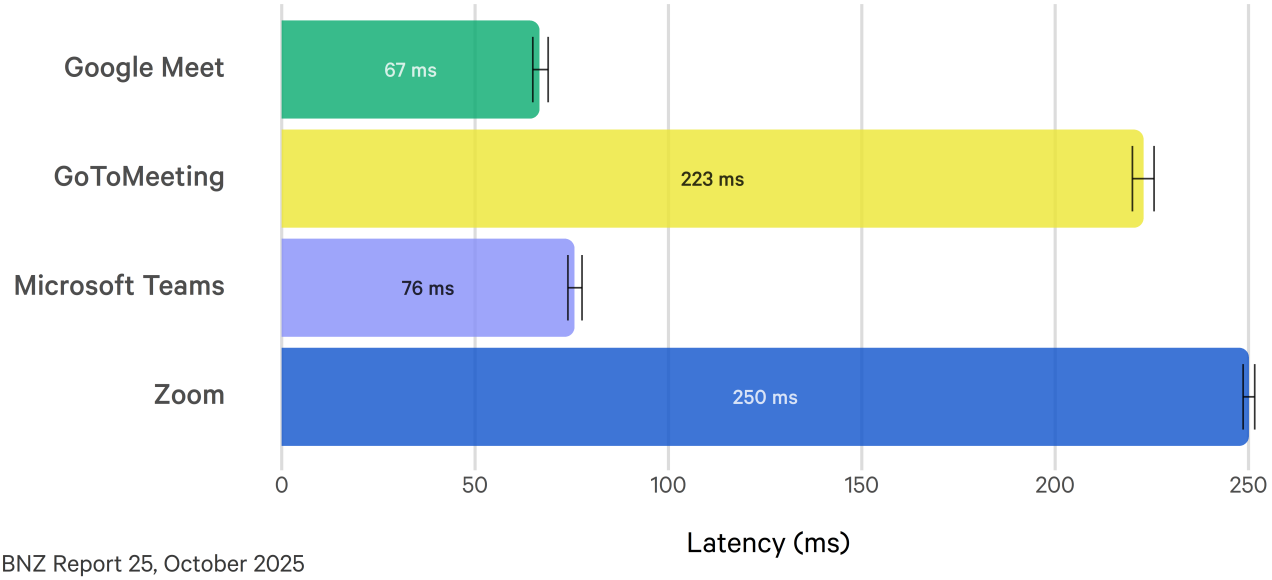
[1] Results for ADSL are based on a sample size of 24 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

[2] Results for VDSL are based on a sample size of 27 Whiteboxes. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.

Spark embedded results continue to mark the first insight into application performance for 5G Fixed Wireless technology within the MBNZ programme. Given that each RSP has different fixed wireless infrastructure, these results should not be directly compared across RSPs.

Figure 30: The Latency to Servers of Different Video Conferencing Services for Spark's 5G Fixed Wireless plan

Results are using free accounts only.
Average of household average latency, lower is better.



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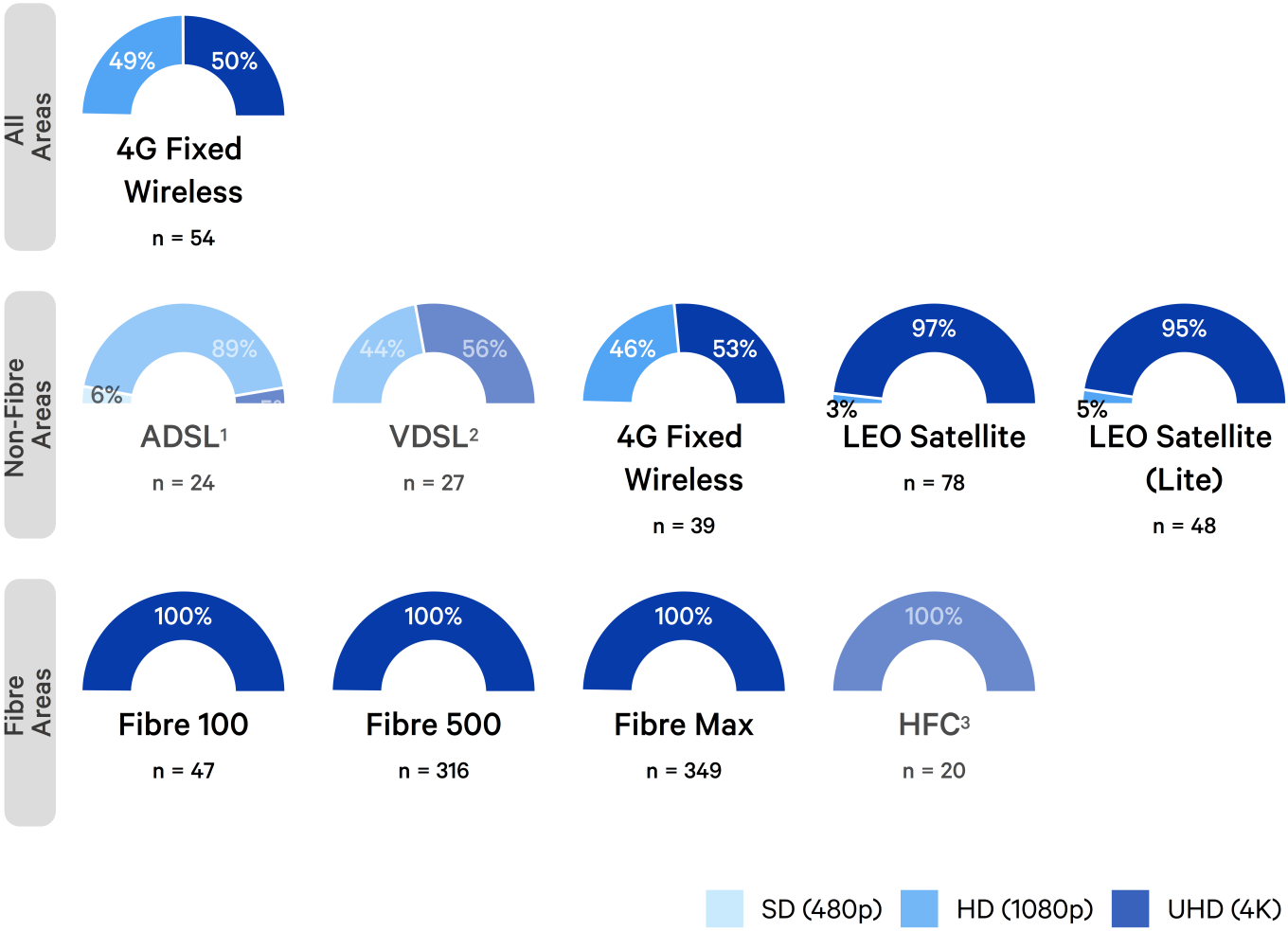
Key Observations

- Results for video conferencing are broadly consistent with the previous report. There was not enough data to report results for Cisco Webex during the reporting month.

YouTube

The YouTube measurement streams a real video from the live YouTube service[4]. Traffic for this service is often delivered from within the broadband provider's networks, through the use of Google Global Caches (GGCs). These are servers installed by the broadband provider inside their network to cache YouTube and other Google content to improve performance.

Figure 31: Highest Quality that can be streamed over YouTube by Plan during Peak Hours



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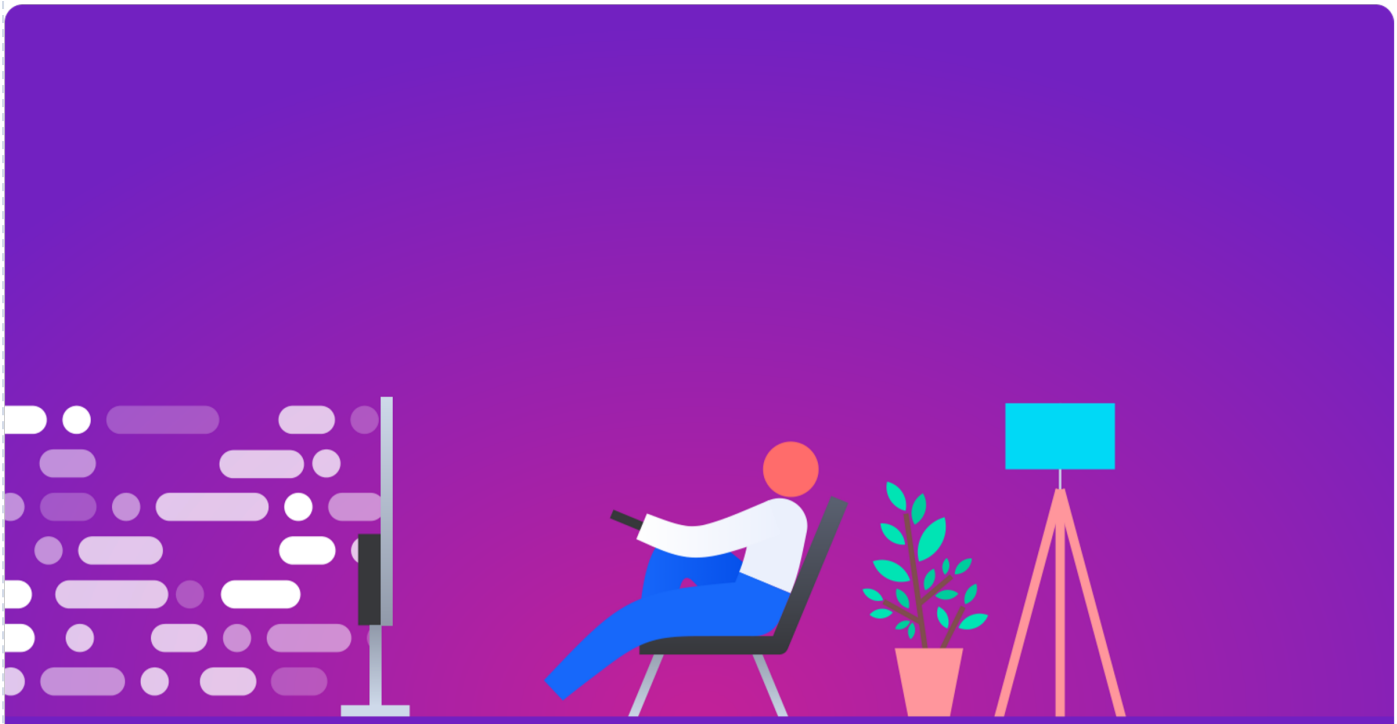
[1] Results for ADSL are based on a sample size of 24 Whiteboxes in Fibre areas. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[2] Results for VDSL are based on a sample size of 27 Whiteboxes in Fibre areas. The low sample size can be attributed to volunteer numbers falling as consumers move away from copper services.
[3] Results for HFC are based on a sample size of 20 Whiteboxes. The low sample size can be attributed to the relatively small coverage area of One New Zealand's HFC network and the competing influence of Fibre and Fixed Wireless in those areas.
[4] This test runs on an idle connection, results may be affected with simultaneous usage.

Key Observations

- 56% of VDSL households in non-Fibre areas were able to stream a UHD YouTube video, compared to just 5% of ADSL households.
- 97% of Starlink Residential LEO Satellite households, and 95% on the Residential Lite service were able to stream a UHD YouTube video.
- 100% of Fibre 100, Fibre 500, Fibre Max and HFC households in Fibre areas were able to stream a UHD YouTube video.



Previous Report Comparison

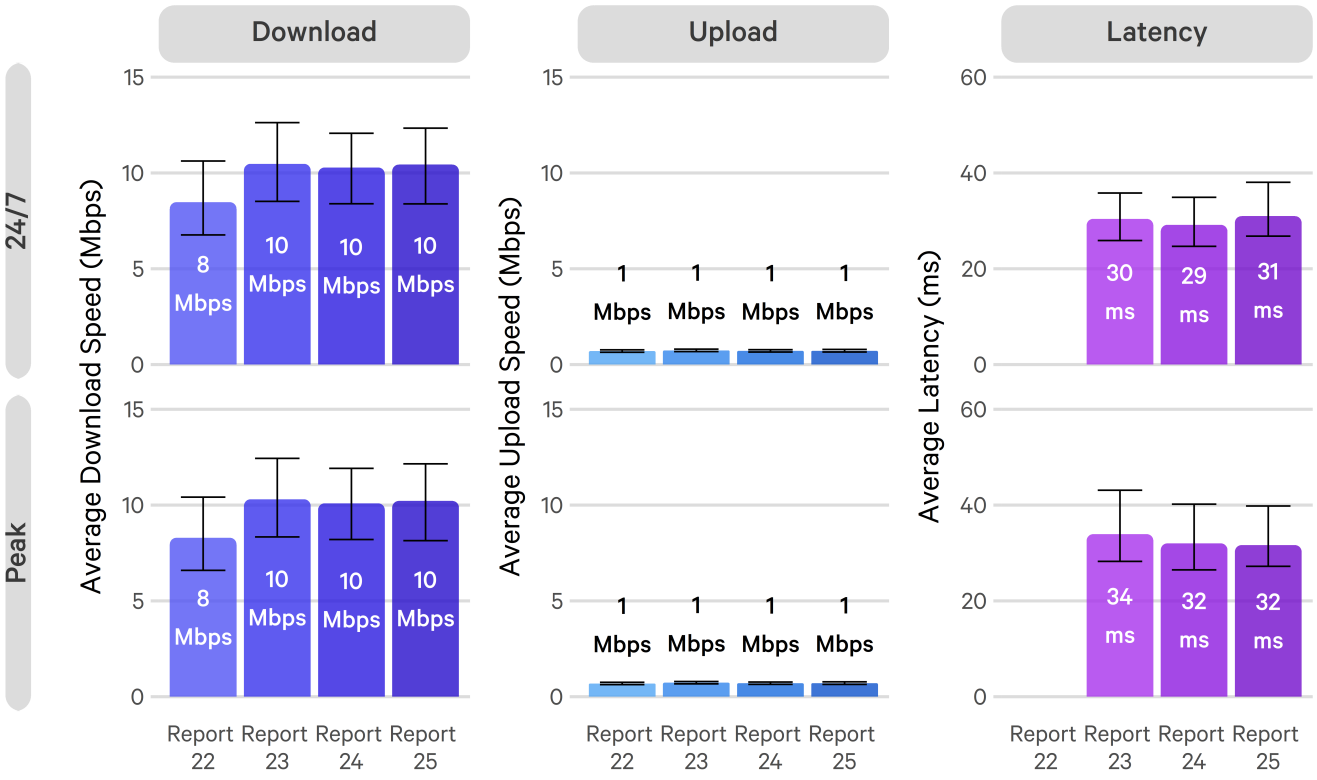
The following charts compare results from previous MBNZ reports across the past year for popular plans in New Zealand for quality of service speed metrics (download and upload). Fibre 100 and Fibre 500 (previously Fibre 50 and Fibre 300) plans saw a big increase in download speeds compared to the previous report thanks to upgrades from Chorus.

Due to the new latency methodology detailed on page 5, the latency comparison charts only contain results from the two previous and current report. This methodology change means the latency results from Report 23 onwards are not directly comparable with those from previous reports.

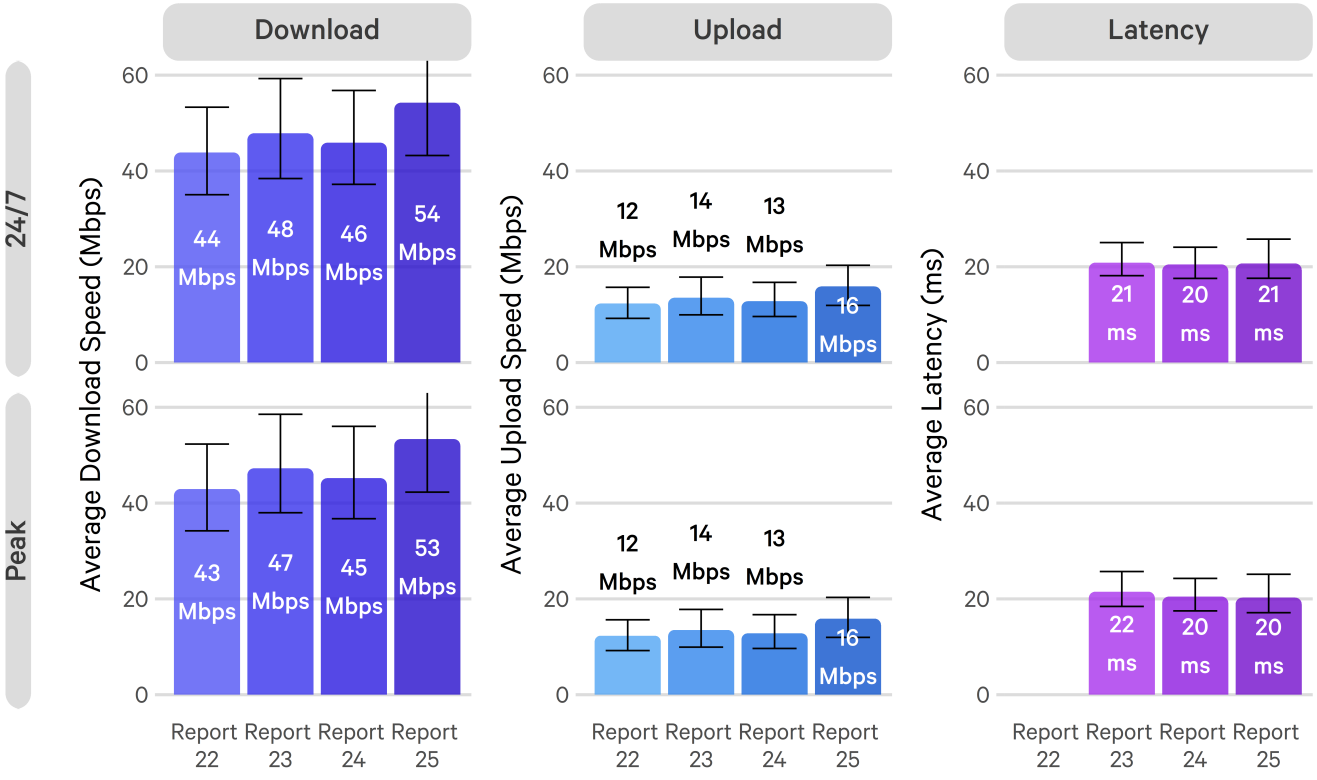
Table 1: Previous MBNZ Reports

MBNZ Report	Measurement Month	Publication Month
Report 22	October 2024	December 2024
Report 23	January 2025	March 2025
Report 24	April 2025	June 2025
Report 25	August 2025	October 2025

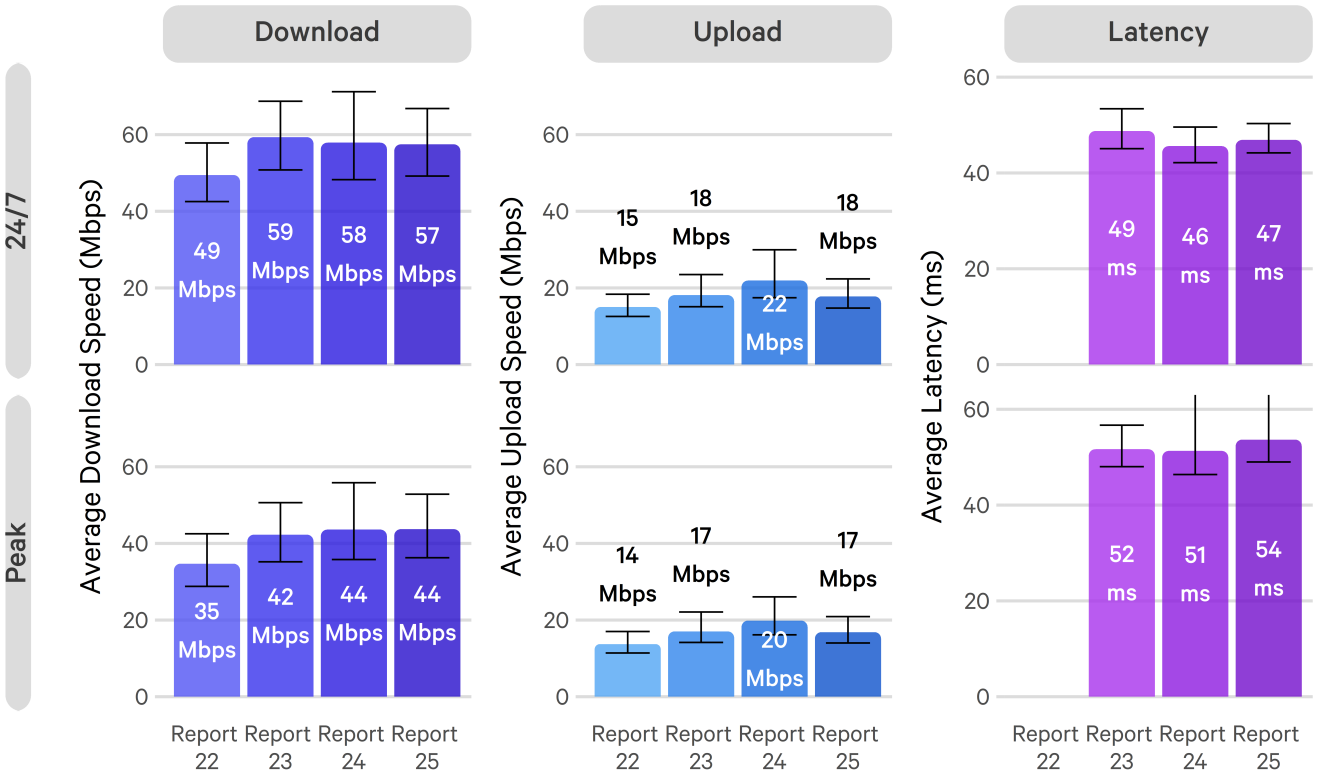
ADSL Performance across Reports



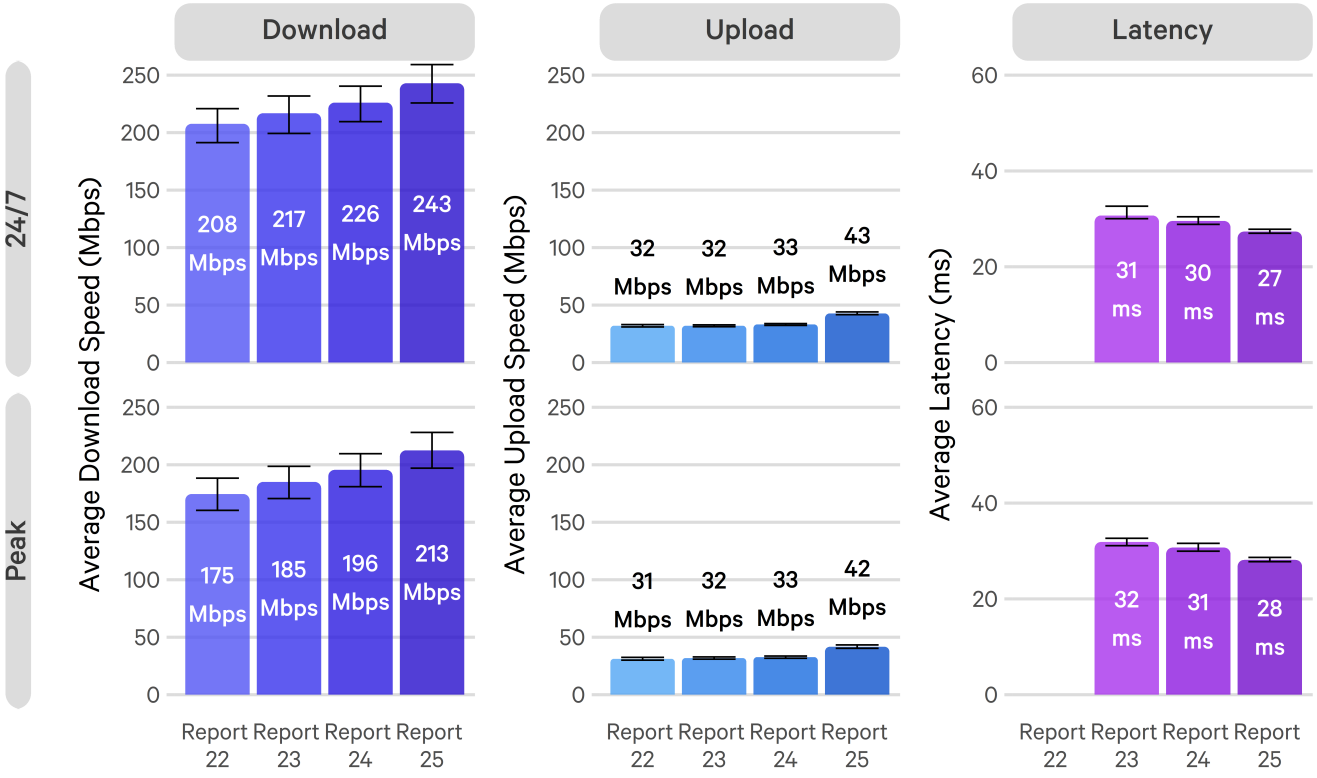
VDSL Performance across Reports



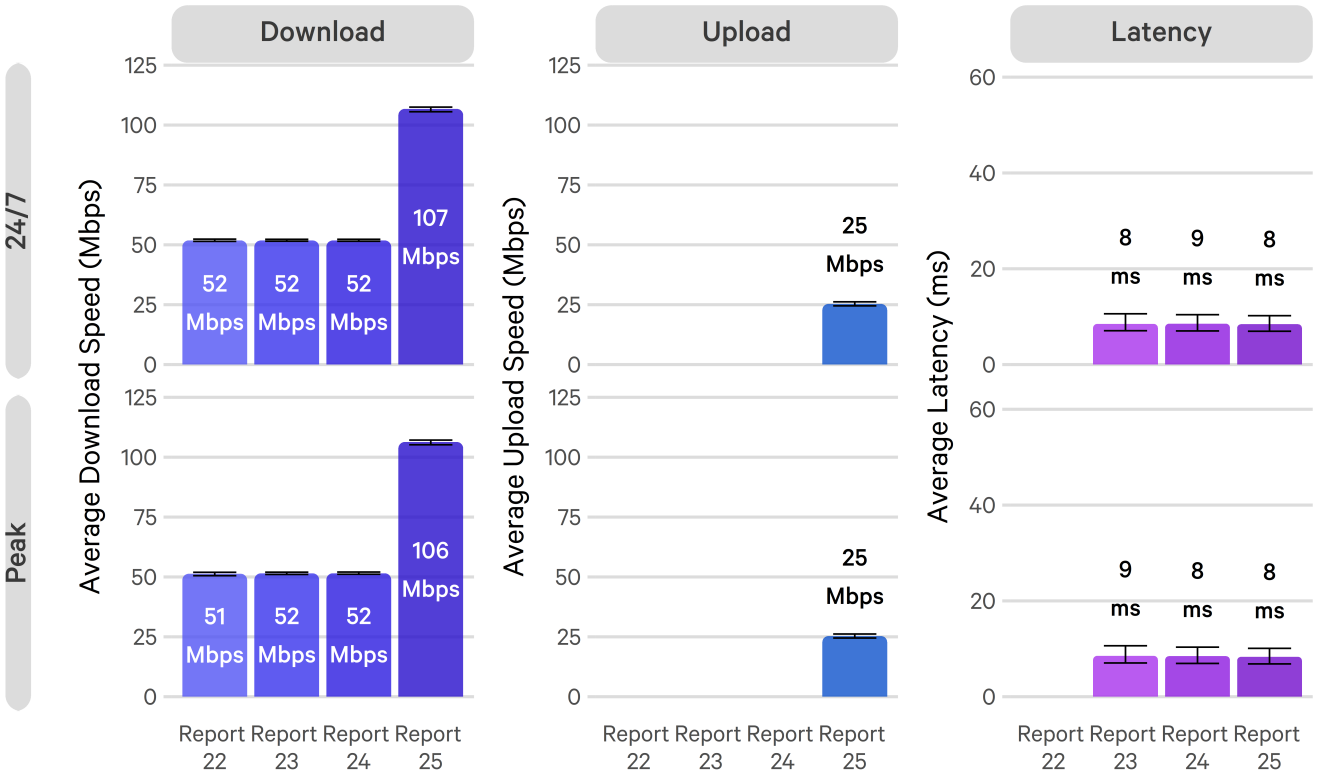
4G Fixed Wireless Performance across Reports



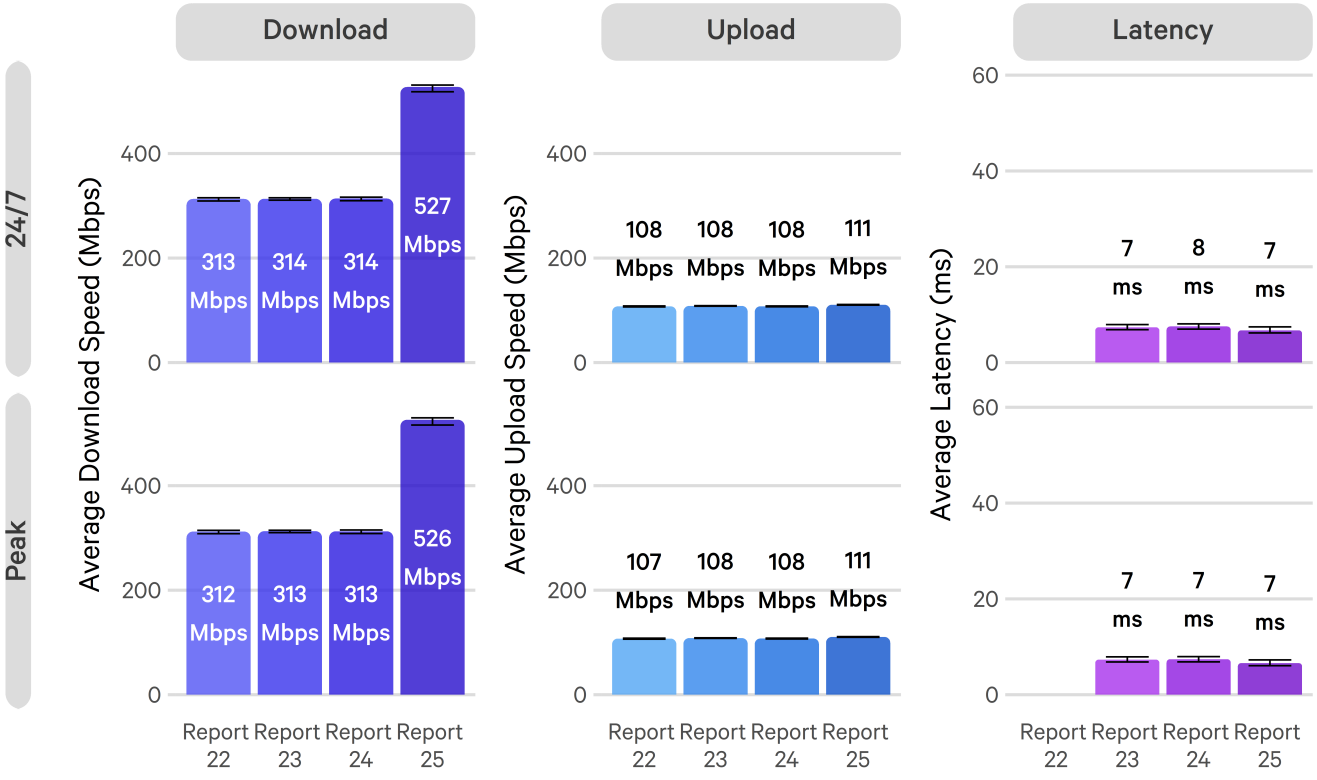
LEO Satellite Performance across Reports



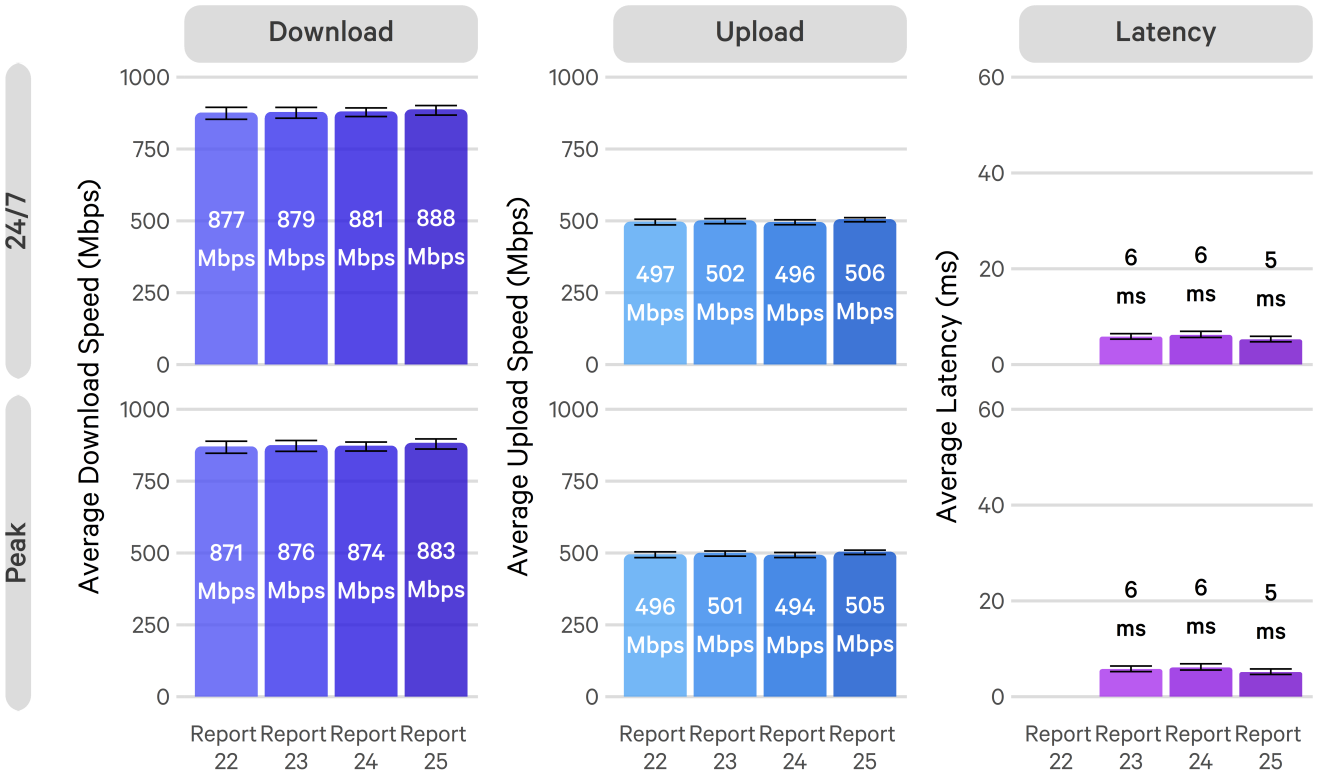
Fibre 100 (previously Fibre 50) Performance across Reports



Fibre 500 (previously Fibre 300) Performance across Reports



Fibre Max Performance across Reports



How we test

Measuring home broadband across New Zealand

- The SamKnows Whitebox is a purpose-built testing agent that connects to your router.
- It runs regular, automated performance tests to record the quality and performance of your internet connection without interfering with your network.
- The Whitebox does not record any personal information or browsing history.

Join the MBNZ Programme!

We are always on the hunt for more volunteers to help us expand on the technologies reported on in the MBNZ programme. Joining our awesome volunteer network enables us to gather even more data so we can continue shining a light on different technologies, RSPs and regions in New Zealand! Sign up at the following link[1], and if you're already a volunteer, encourage your friends and family to join too!

- Have 24/7 access to your own data.
- View all your data in one place via the SamKnows One platform.
- Create customised charts and save the results that mean the most to you.
- Track changes in your connection over time.

[1] https://www.measuringbroadbandnewzealand.com/sign-up

Our tests

Test	Definition
Download	The speed at which data can be transferred from the SamKnows test server to your device, measured in megabits per second (Mbps).
Upload	The speed at which information is transferred from your device to the SamKnows test server, measured in megabits per second (Mbps).
Latency	How long it takes a data packet to go from your device to our test server and back to your device, measured in milliseconds (ms). The shorter the latency, the better.
Latency Under Load	How long it takes a data packet to go from your device to our test server and back to your device while a download/upload test is running, measured in milliseconds (ms). The shorter the latency, the better.
Jitter	The variation in the delay of received packets, measured in milliseconds (ms). Essentially it is a measure of the stability of latency.
Packet Loss	Packet loss counts packets that are sent over a network and do not make it to their destination, measured as a percentage of packets lost out of all packets sent.
Disconnection	A disconnection means that latency measurement packets were lost for 30 seconds or longer. Measured as the median of household daily rates.
Video Conferencing	Measures round-trip latency and reachability of a selection of video conferencing services.
Social Media	Measures round-trip latency and reachability of a selection of major social media services.
Online Gaming	Measures performance for a number of major games and supporting services, such as game distribution platforms.
Video Streaming	Measures the highest bitrate, and therefore quality level, you can reliably stream from real content servers.
Webpage Loading Time	The time it takes for a specific webpage to fully load. This is a combination test that includes download, latency and DNS in one test that accurately mimics real-world usage.
CDN Measurements	Measures download performance for the same (or very similar) object from a variety of popular Content Delivery Networks over HTTP.
Voice over IP	Measures the suitability of a broadband connection for VoIP calls.

Glossary

Term	Definition
ADSL	Asymmetric digital subscriber line. A broadband connection that uses existing telephone lines to send data.
Advertised speed	The speed at which broadband services are typically advertised or marketed, usually described in Mbps (megabits per second). On some networks like ADSL or Fixed Wireless, these are not given as a general maximum but vary from line to line as they do not transmit data without depreciation across distance.
Broadband	A network service or connection which is defined as “always on”, as opposed to historical dial-up internet.
Broadband speed	The speed at which data is transmitted over a broadband connection, usually measured in megabits per second (Mbps).
Disconnection	A disconnection means that latency measurement packets were lost for 30 seconds or longer.
Download speed	The speed that data travels from our test server to your router. Measured in megabits per second (Mbps); higher is better.
HFC	Hybrid Fibre-Coaxial. A broadband connection that uses coaxial cables to send data.
Fibre	A broadband connection that uses Fibre-Optic cables to send data to and from a property directly. Sometimes referred to as FTTH (Fibre-to-the-home) or FTTP (Fibre-to-the-premises).
Fixed Wireless	A broadband connection that uses radio waves to provide internet access to a premises.
Latency	The time it takes for a data packet to travel from your router to our test server and back. Measured in milliseconds (ms); lower is better.
Latency under load	The time it takes for a data packet to travel from your router to our test server and back while a download/upload speed test is running. Measured in milliseconds (ms); lower is better.
LEO Satellite	Low Earth Orbit Satellite. A broadband connection that is transmitted wirelessly using a satellite and ground based satellite dish.
Mbps	Megabits per second. A unit measuring broadband speed. Mbps is the equivalent of 1,000 kilobits per second.
Packet loss	The percentage of packets that were lost somewhere between your router and our test server. Measured as a percentage of all packets sent; lower is better.
Peak hours	The time of day when people are typically using their internet connection, defined in New Zealand as between 7pm and 11pm.
RSP	Retail Service Provider. A company that provides consumers with access to the internet.
Upload speed	The speed that data travels from your router to our test server. Measured in Mbps (megabits per second); higher is better.
VDSL	Very high speed digital subscriber line. A broadband connection that allows higher speeds than ADSL technologies.
WISP	Wireless Internet Service Provider. A company that delivers internet access to customers by transmitting data wirelessly from local towers to a receiver installed at the user’s home.

Summary Tables

Table 2: All RSPs Included in MBNZ Programme

All RSPs Included in MBNZ
2degrees & Slingshot
One New Zealand (Including Farmside)
Spark (Including Skinny & Bigpipe)
Starlink
Mercury
Sky New Zealand
Lightwire
Contact Energy
Voyager
Now NZ
Electric Kiwi
Inspire Net
Wheronet
Ultimate Broadband
WIZwireless
Wireless Nation
Full Flavour
Netspeed
PureLink
Select Solutions
WorldNet
UniFone
Evolution Network
Vorco
Primo

The latency results presented in Tables 3 and 4 below are different from previous reports, using a snapshot of hourly testing instead of continuous monitoring. More information on this change can be found above on page 5.

Table 3: Download, Upload and Latency Performance by Plan

Plan	SFA Area	Peak or Off-Peak	Number of Units	Average Download (Mbps)	Average Upload (Mbps)	Average Latency (ms)
ADSL	All Areas	*24/7*	*24*	*10 Mbps*	*1 Mbps*	*31 ms*
	All Areas	*Peak*	*24*	*10 Mbps*	*1 Mbps*	*32 ms*
	Non-Fibre Areas	*24/7*	*24*	*10 Mbps*	*1 Mbps*	*31 ms*
	Non-Fibre Areas	*Peak*	*24*	*10 Mbps*	*1 Mbps*	*32 ms*
VDSL	All Areas	*24/7*	*28*	*55 Mbps*	*16 Mbps*	*20 ms*
	All Areas	*Peak*	*28*	*54 Mbps*	*16 Mbps*	*20 ms*
	Non-Fibre Areas	*24/7*	*27*	*54 Mbps*	*16 Mbps*	*21 ms*
	Non-Fibre Areas	*Peak*	*27*	*53 Mbps*	*16 Mbps*	*20 ms*
LEO Satellite	Non-Fibre Areas	24/7	76	243 Mbps	43 Mbps	27 ms
	Non-Fibre Areas	Peak	76	213 Mbps	42 Mbps	28 ms
LEO Satellite (Lite)	Non-Fibre Areas	24/7	47	216 Mbps	39 Mbps	27 ms
	Non-Fibre Areas	Peak	47	173 Mbps	37 Mbps	28 ms
4G Fixed Wireless	All Areas	24/7	53	57 Mbps	18 Mbps	47 ms
	All Areas	Peak	53	44 Mbps	17 Mbps	54 ms
	Non-Fibre Areas	24/7	39	58 Mbps	16 Mbps	48 ms
	Non-Fibre Areas	Peak	39	44 Mbps	15 Mbps	56 ms
Fibre 100	Fibre Areas	24/7	48	107 Mbps	25 Mbps	8 ms
	Fibre Areas	Peak	48	106 Mbps	25 Mbps	8 ms
Fibre 500	Fibre Areas	24/7	313	527 Mbps	111 Mbps	7 ms
	Fibre Areas	Peak	313	526 Mbps	111 Mbps	7 ms

Plan	SFA Area	Peak or Off-Peak	Number of Units	Average Download (Mbps)	Average Upload (Mbps)	Average Latency (ms)
Fibre Max	Fibre Areas	24/7	346	888 Mbps	506 Mbps	5 ms
	Fibre Areas	Peak	346	883 Mbps	505 Mbps	5 ms
HFC	Fibre Areas	*24/7*	*20*	*918 Mbps*	*104 Mbps*	*10 ms*
	Fibre Areas	*Peak*	*20*	*920 Mbps*	*104 Mbps*	*10 ms*
5G Fixed Wireless	All Areas		*12*			
WISP Fixed Wireless	All Areas		61			

Table 4: Fibre 500 and Fibre Max Download, Upload and Latency Summary by RSP

Plan	RSP	Peak or Off-Peak	Number of Units	Average Download (Mbps)	Average Upload (Mbps)	Average Latency (ms)
Fibre 500	2degrees & Slingshot	24/7	86	527 Mbps	112 Mbps	9 ms
		Peak	86	522 Mbps	112 Mbps	9 ms
	Mercury	24/7	51	519 Mbps	114 Mbps	6 ms
		Peak	51	518 Mbps	114 Mbps	6 ms
	One New Zealand	24/7	44	539 Mbps	114 Mbps	7 ms
		Peak	44	539 Mbps	114 Mbps	7 ms
	Spark	24/7	74	526 Mbps	108 Mbps	6 ms
		Peak	74	524 Mbps	108 Mbps	6 ms
Fibre Max	2degrees & Slingshot	24/7	116	867 Mbps	495 Mbps	7 ms
		Peak	116	853 Mbps	493 Mbps	7 ms
	Mercury	24/7	45	894 Mbps	510 Mbps	5 ms
		Peak	45	893 Mbps	510 Mbps	5 ms
	One New Zealand	24/7	37	906 Mbps	499 Mbps	7 ms
		Peak	37	903 Mbps	498 Mbps	7 ms
	Sky New Zealand	24/7	59	921 Mbps	519 Mbps	6 ms
		Peak	59	913 Mbps	519 Mbps	6 ms
	Spark	24/7	47	883 Mbps	515 Mbps	4 ms
		Peak	47	879 Mbps	512 Mbps	4 ms

Table 5: Latency to Various Video Conferencing Services by RSP, Fibre Plans Only

Video Conferencing Service	RSP	Number of Units	Average Latency
Cisco-Webex	2degrees & Slingshot	216	47 ms
	Spark	131	46 ms
	One New Zealand	98	45 ms
	Mercury	96	45 ms
	Sky New Zealand	81	44 ms
GoToMeeting	2degrees & Slingshot	227	159 ms
	Spark	134	156 ms
	Mercury	99	144 ms
	One New Zealand	99	161 ms
	Sky New Zealand	86	159 ms
Google-Meet	2degrees & Slingshot	227	37 ms
	Spark	134	36 ms
	Mercury	99	35 ms
	One New Zealand	99	35 ms
	Sky New Zealand	86	34 ms
Microsoft-Teams	2degrees & Slingshot	227	46 ms
	Spark	134	49 ms
	Mercury	99	46 ms
	One New Zealand	99	44 ms
	Sky New Zealand	86	46 ms
Zoom	2degrees & Slingshot	227	203 ms
	Spark	134	202 ms
	Mercury	99	213 ms
	One New Zealand	99	190 ms
	Sky New Zealand	86	204 ms