

Enhancing LEO Internet Providers Telemetry with User-Initiated Active Measurements

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How can user-initiated active measurements enhance LEO internet telemetry?

Motivation

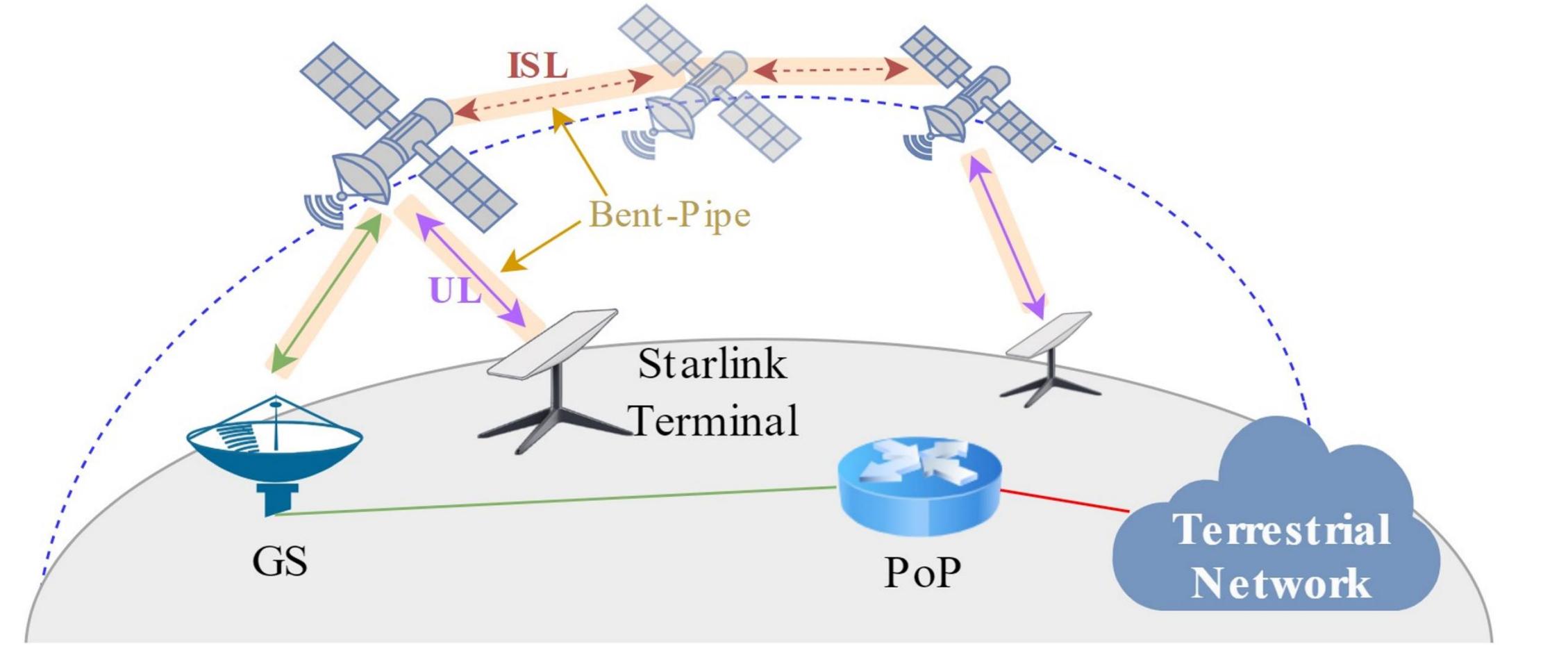
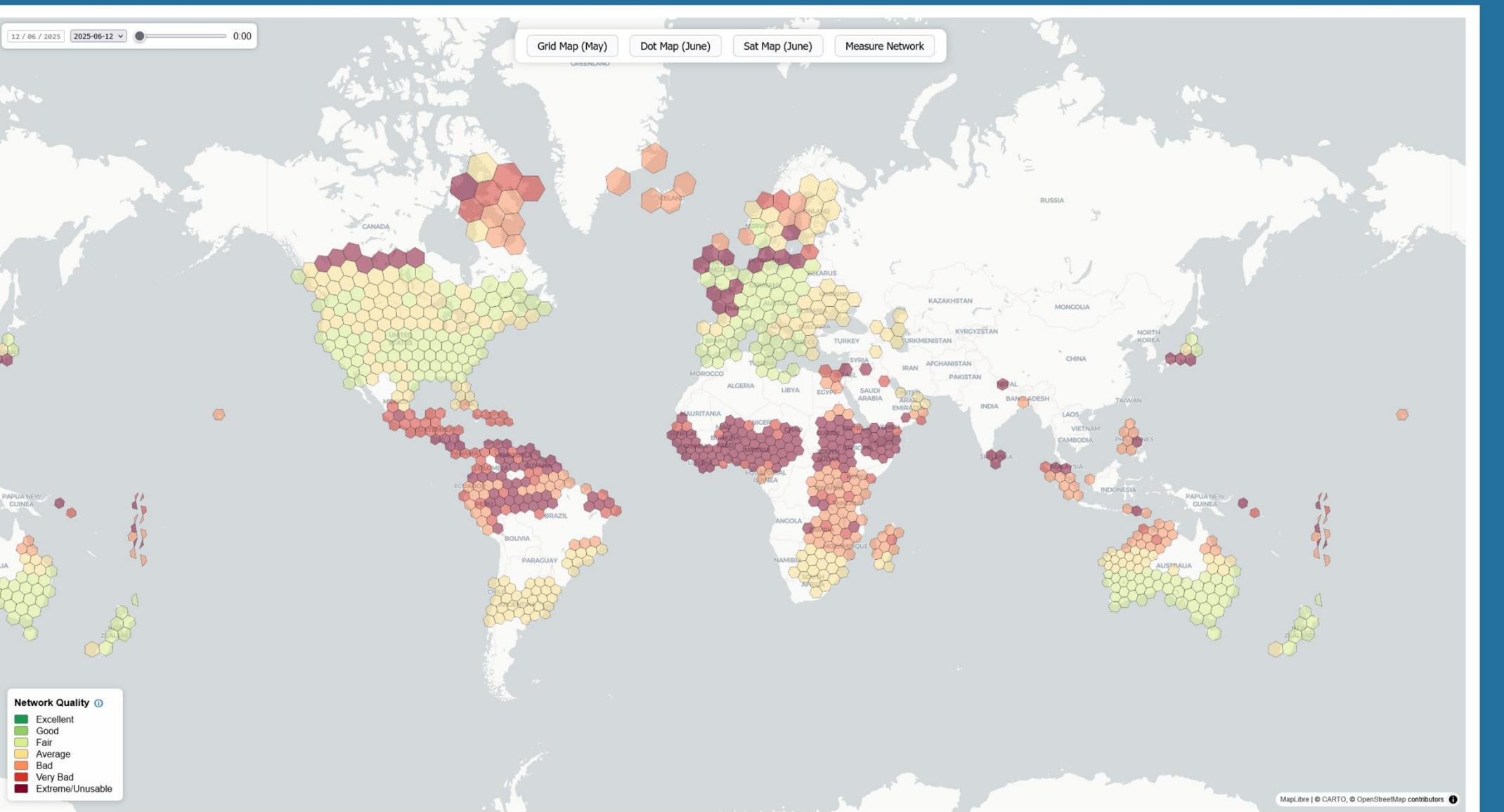


Figure 1. Starlink architecture. Reproduced from Nitinder Mohan et al., "A Multifaceted Look at Starlink Performance," in Proceedings of the 2024 Web Conference (WWW'24), ACM, 2024. <https://doi.org/10.1145/3589334.3645328>. © 2024 Copyright held by the owner/author(s). Licensed to ACM.

Goal: Enable multi-layered comparison between networks

Integration goal



Unified platform for Starlink performance information

Integration and results

Privacy agreement

If you agree to M-Lab's and Our's data collection policy
press the button below

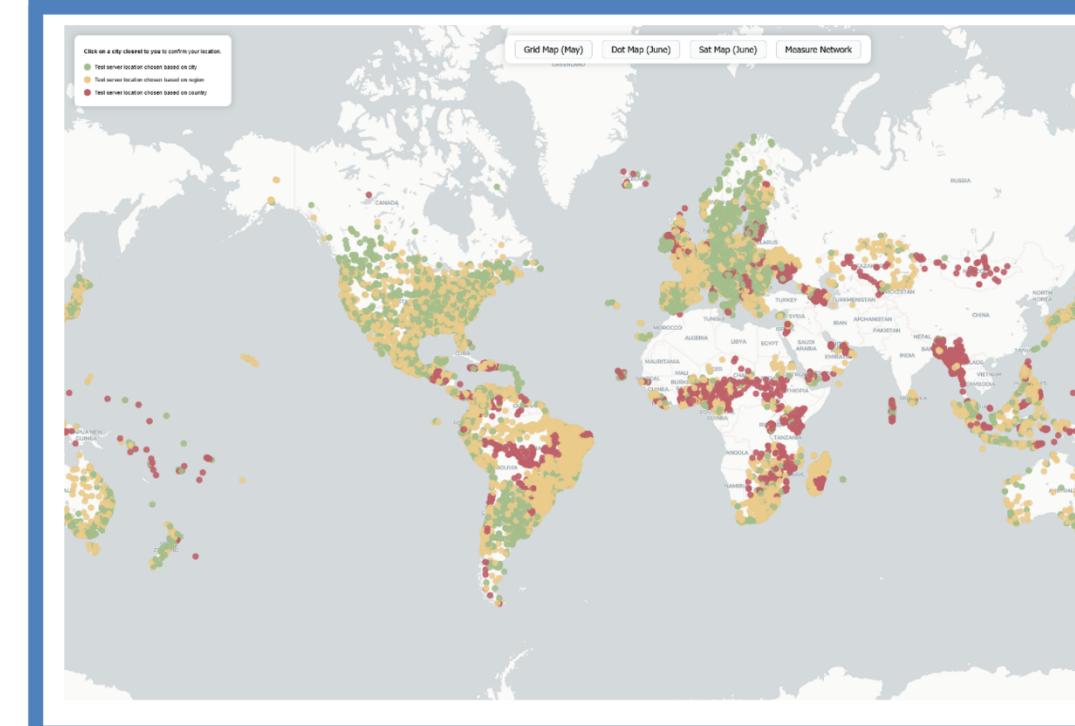
Agree

Ip based geolocation

Your location seems to be:
Gouda
South Holland
NL
Is this correct?

Not correct?

City selection map



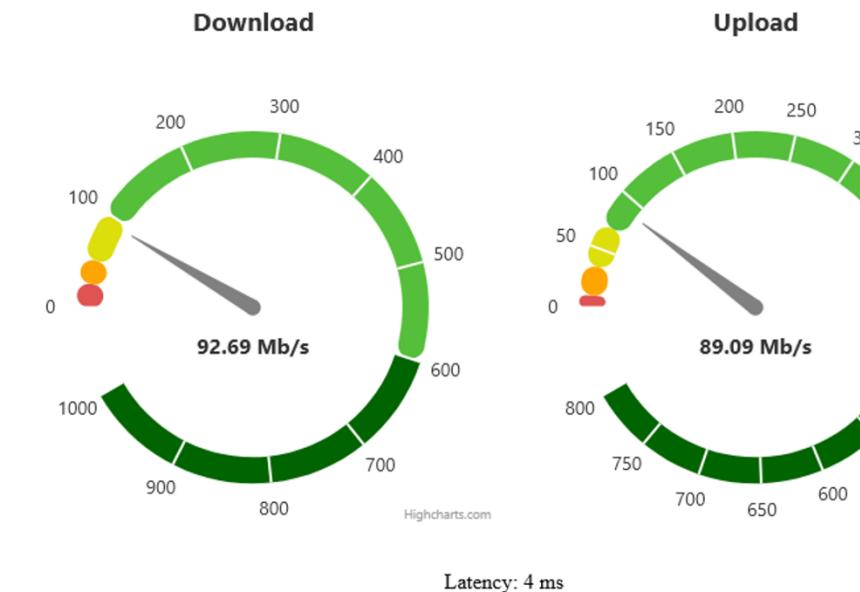
Server precision legend

Click on a city closest to you to confirm your location.
 Test server location chosen based on city
 Test server location chosen based on region
 Test server location chosen based on country

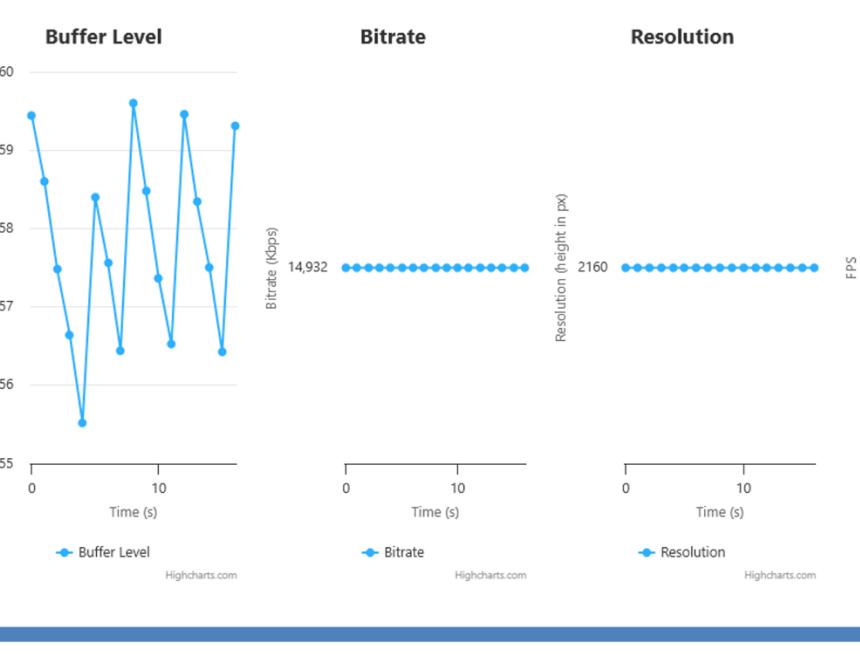
Web browsing test

No interface

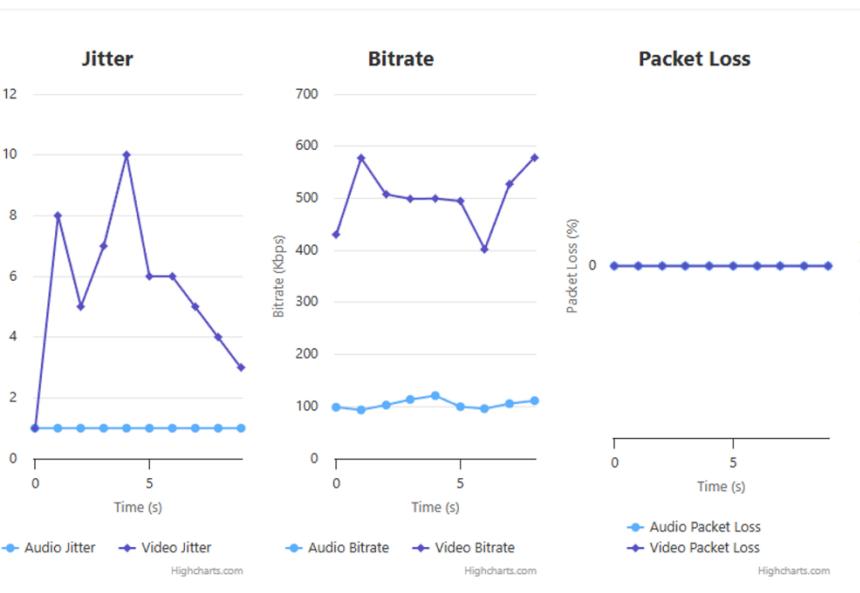
Speed test



Streaming test



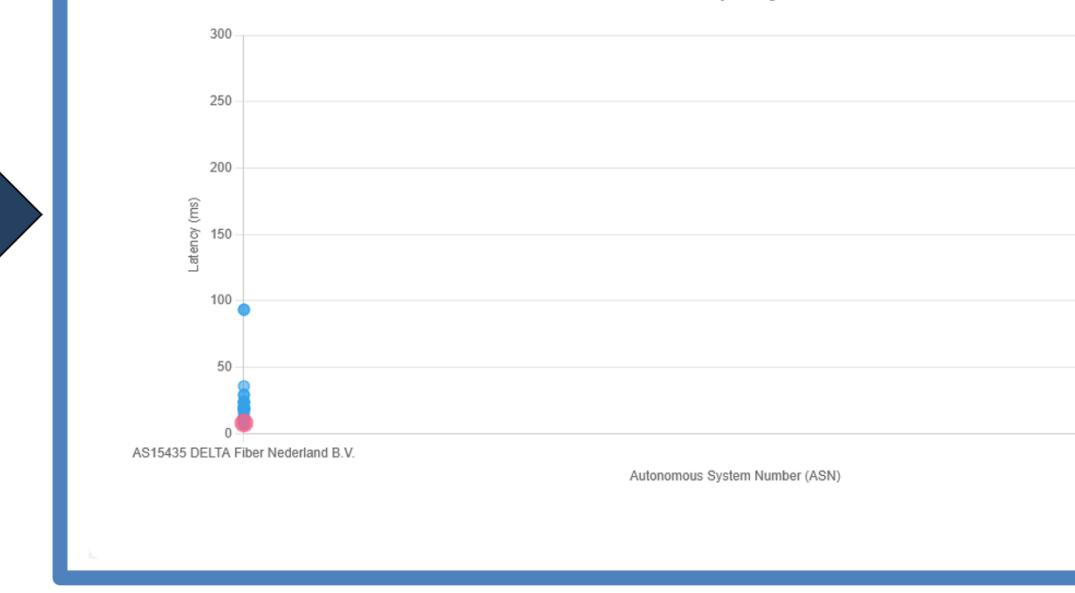
WebRtc Test



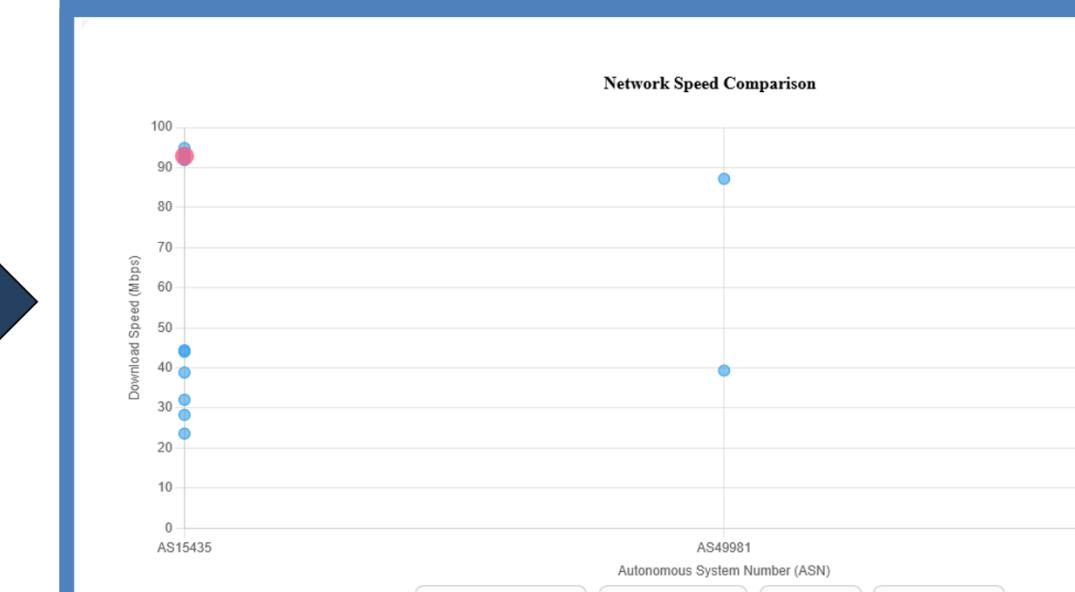
WebRtc comparison

WebRtc Performance Comparison

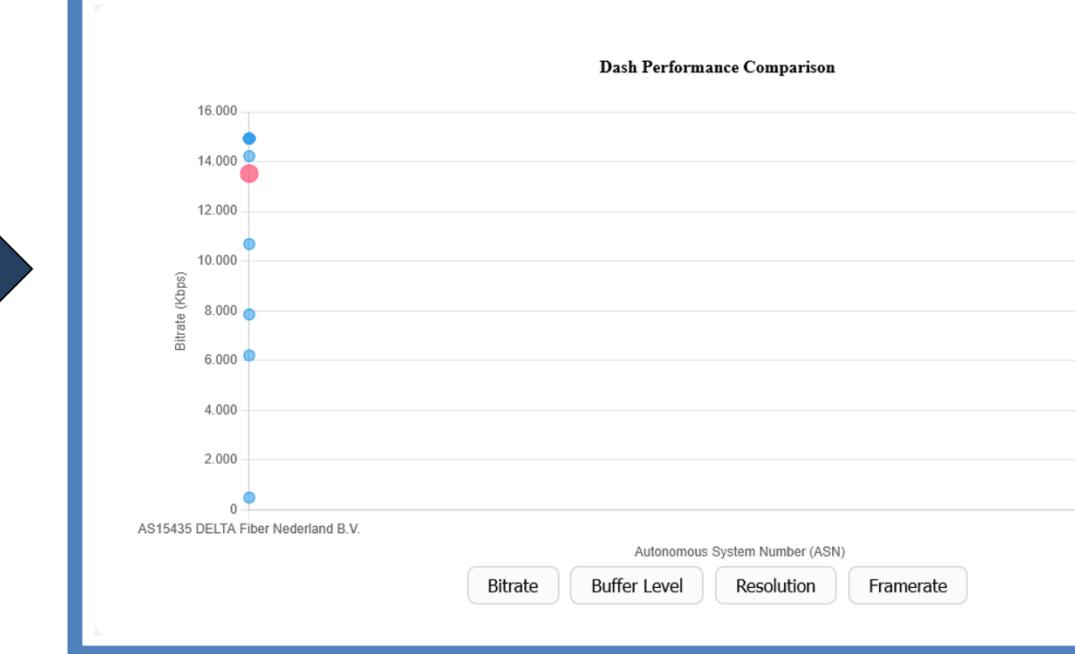
Web browsing comparison



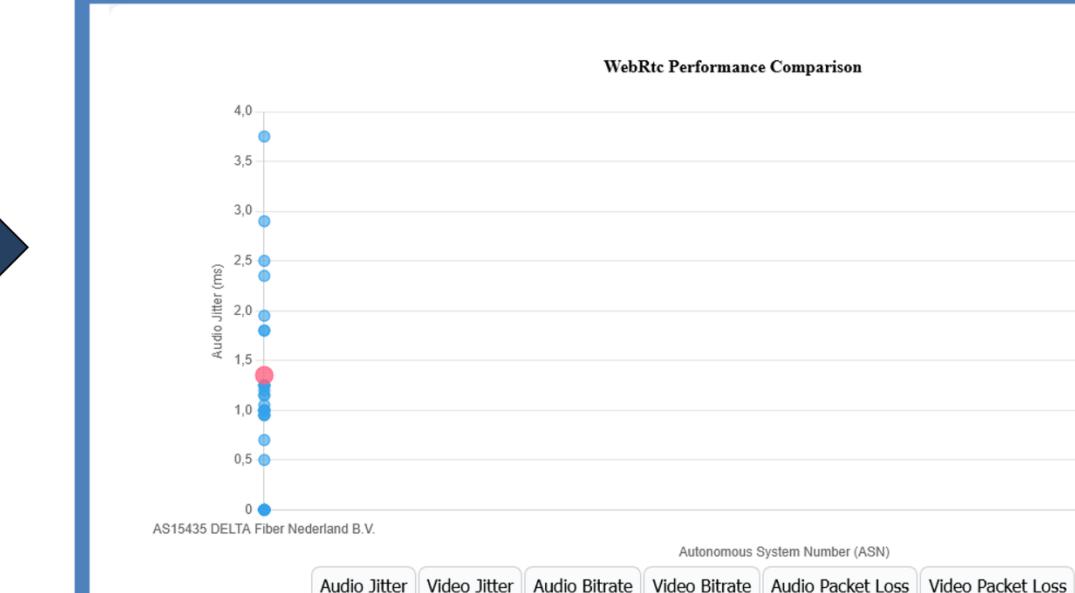
Speed comparison



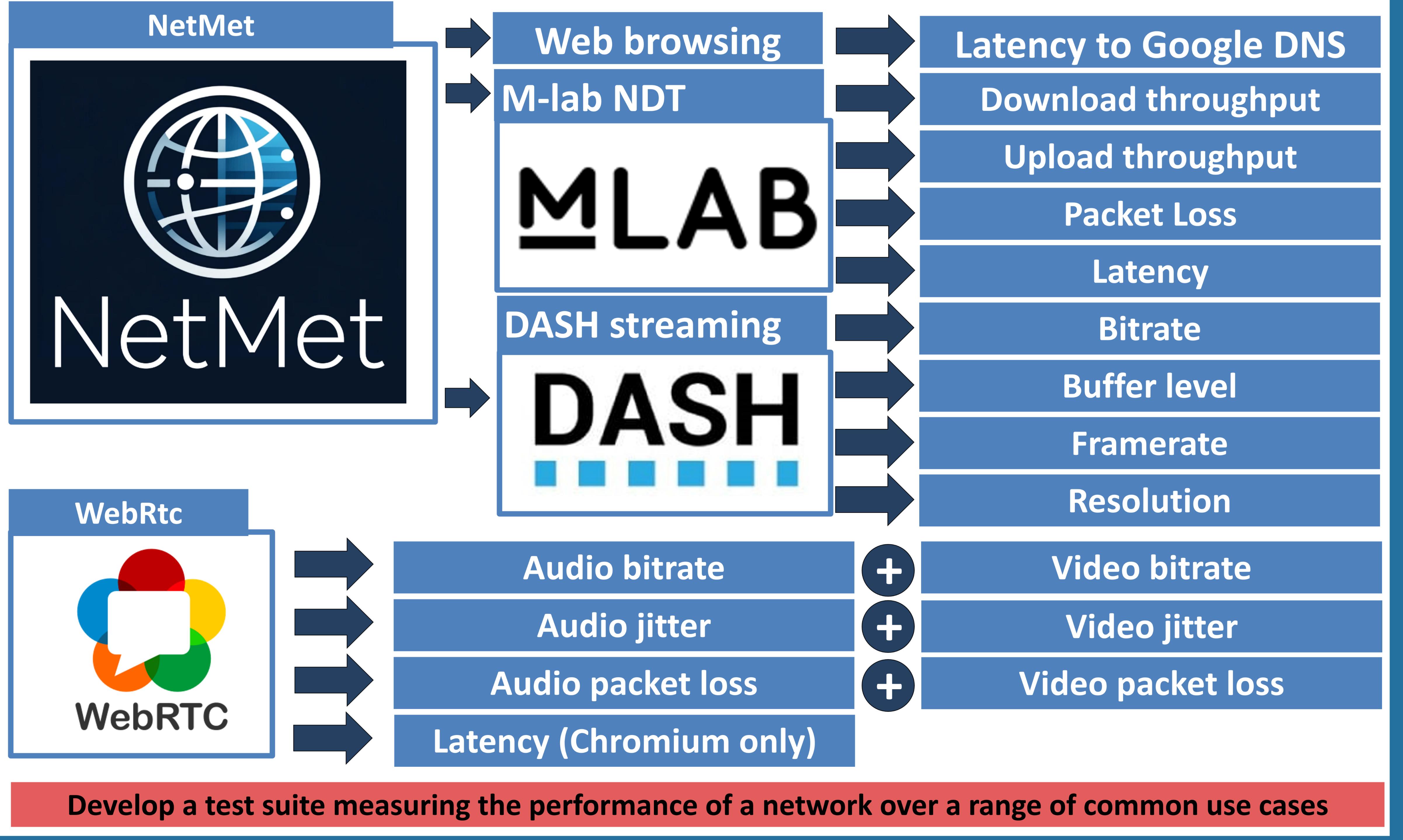
Streaming comparison



WebRtc comparison



Methodology



Code



IPinfo

Perform extensive testing of the platform

Replace free datasets with higher-quality paid alternatives

Introduce new comparison methods and visualizations

References

- Mohan, N., Ferguson, A. E., Cech, H., Bose, R., Renatin, P. R., Marina, M. K., & Ott, J. (2024). A Multifaceted Look at Starlink Performance. In Proceedings of the 2024 Web Conference (WWW'24). ACM. <https://doi.org/10.1145/3589334.3645328>
- Rohan Bose. NetMet: A Measurement Framework for Starlink and Other Networks. GitHub. <https://github.com/boserohan/netmet>. Accessed June 23, 2025.
- Measurement Lab (M-Lab). Open Internet Measurement Platform. <https://www.measurementlab.net/>. Accessed June 23, 2025.
- Google. WebRTC. <https://webrtc.org/>. Accessed June 23, 2025.