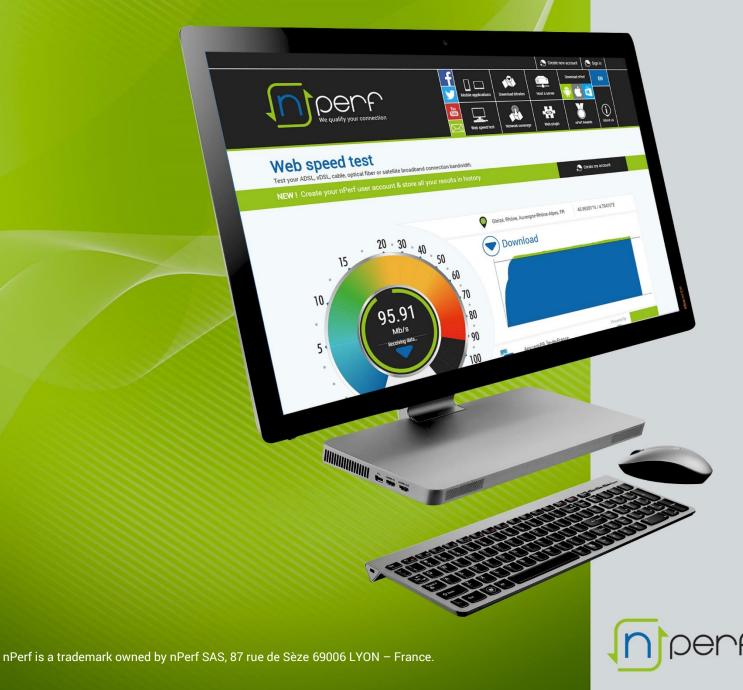
Barometer of fixed internet connections in Switzerland



Publication of September 21, 2018

First half of 2018



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1 Methodology

1.1 The panel

nPerf offers an Internet speed test application, which can be used for free at <u>www.nPerf.com</u>.

Everyone is free to use nPerf to measure the speed of their Internet connection. All users of the nPerf application form the panel of this study.

In addition, the results from the nPerf speed test integrated on Libellules.ch and the other partner websites are also included in the panel.

Thus, the nPerf study is based on thousands of tests, making it the study with the largest panel in Switzerland.

1.2 Speed and latency tests

1.2.1 Objectives and operation of the speed and latency test

The purpose of the nPerf Speed Test is to measure the maximum capacity of the data connection in terms of data rates and latency.

To achieve this, nPerf establishes multiple connections simultaneously to saturate the bandwidth to accurately measure it. The speed used for the barometer is the average speed measured by the application.

Speed measurements thus reflect the maximum capacity of the data connection. This rate may not be representative of the user experience experienced during normal use of the Internet, as it is measured only on nPerf servers.

The measured bit rate can be impacted by the quality of the user's local network, especially since the expected flow is high. Thus, for an optical fiber internet connection, a local WiFi or Power-Line connection can greatly reduce performance. However, since these constraints are identical to all market operators, they do not bias the comparison. In addition, the user is made aware of these constraints and invited to use a wired local connection for testing very high speed.

1.2.2 nPerf servers

To ensure maximum user bandwidth at all times, nPerf relies on a network of servers dedicated to this task.

These servers are located with hosts in Switzerland and abroad. Switzerland providers are welcome to install nPerf servers, that's free!

The total bandwidth available for Europe is greater than 300 Gb/s.



1.3 Filtering of test results

The results obtained are subject to automatic and manual checks to avoid duplication and to rule out possible abusive or fraudulent use (massive tests, robots ...).

1.3.1 Filtering of "business" plans

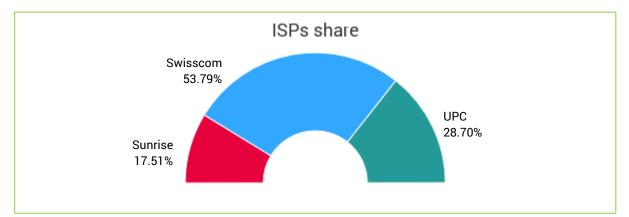
To publish a study that best reflects the consumer market, we have excluded tests made from "business" connections. Tests performed on cellular connections (2G, 3G, 4G) are also excluded from this barometer.

2 Amount of data

From January 1, 2018 to June 30, 2018 we counted 48.729 tests, distributed after filtering as follows:

Country	Tests	
Switzerland	40.811	

Breakdown of tests by provider



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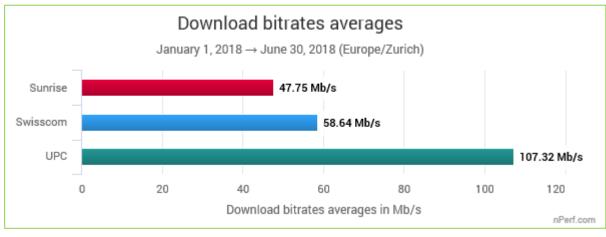


3 Bitrates and latency

3.1 Results by provider

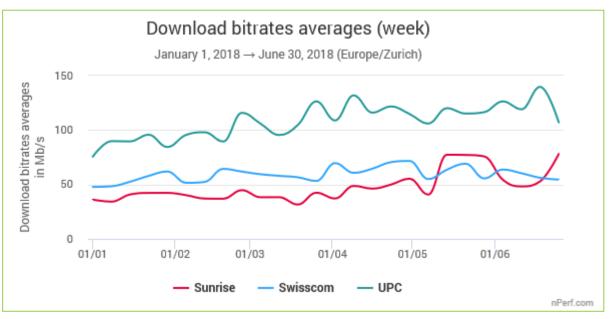
3.1.1 Download speed

In the first half of 2018, the average download speed in Switzerland was 70.71 Mb/s.



The highest value is the best.

All technologies combined, UPC offers on average the best download speed to its subscribers during the first half of 2018.



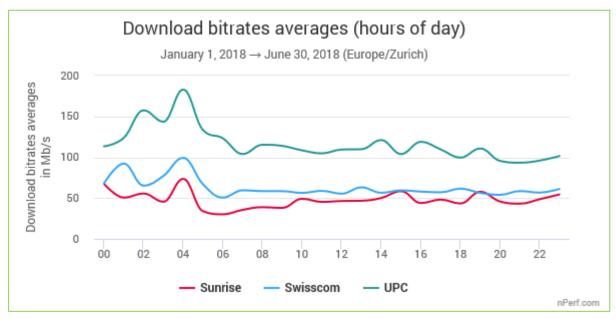
The highest value is the best.

Above graph illustrates the ability of providers to maintain a constant download speed during the first half of 2018, regardless of network load (number of connected clients).

All the ISPs are improving their performance on this period, particularly UPC and Sunrise.

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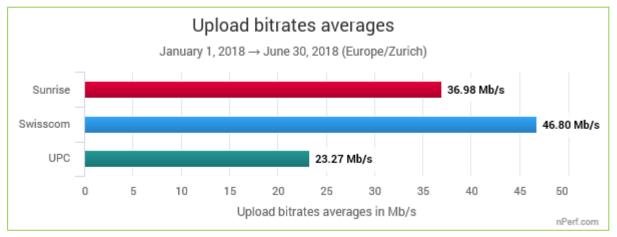


The highest value is the best.

This graph illustrates the ability of providers to ensure a constant download speed throughout the day, regardless of network load (number of connected clients). We note that there is no decline of the troughput during the busy hours; this is a good performance from the ISPs.

3.1.2 Upload speed

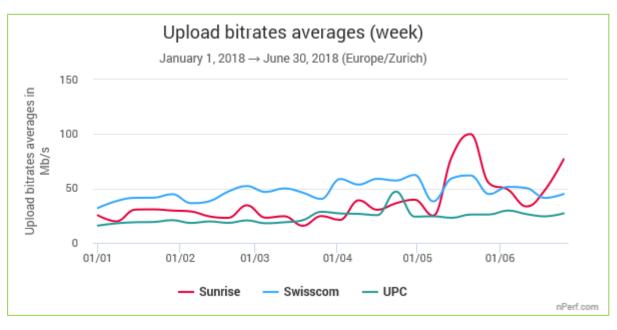
In the first half of 2018, the average upload speed in Switzerland was 38.33 Mb/s.



The highest value is the best.

All technologies combined, Swisscom offers, on average, the best upload speed to its subscribers during the first half of 2018.

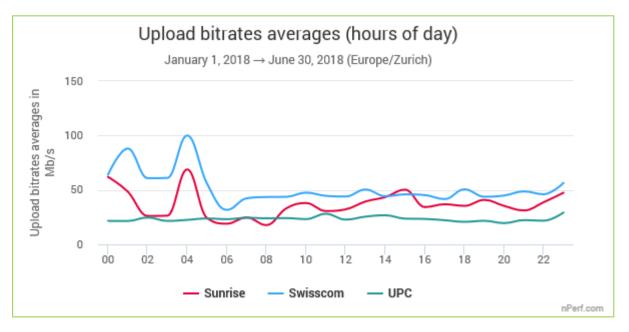




The highest value is the best.

This graph illustrates the ability of providers to maintain a constant upload speed during the first half of this year, regardless of network load (number of connected clients).

The performance of all operators is progressing steadily. Sunrise makes the difference on the last two months.

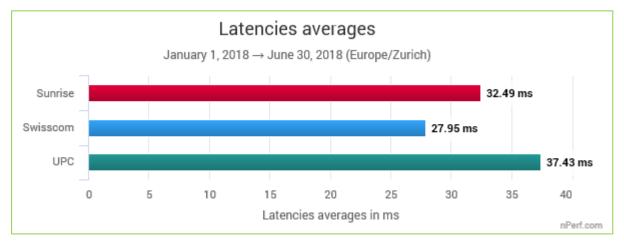


The highest value is the best.

This graph illustrates the ability of providers to ensure a constant upload speed throughout the day, regardless of network load (number of connected clients). We note that there is no decline of the troughput during the busy hours; this is a good performance from the ISPs.



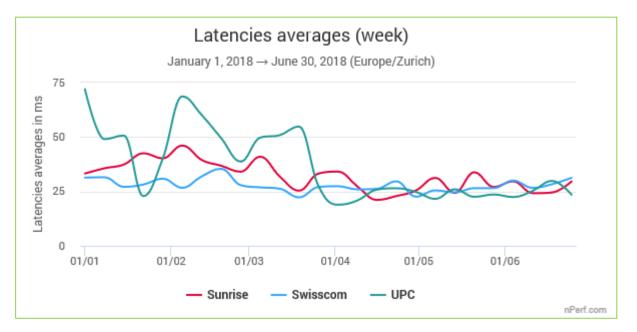
In the first half of 2018, the average latency in Switzerland



was 31.47 ms.

The lowest value is the best.

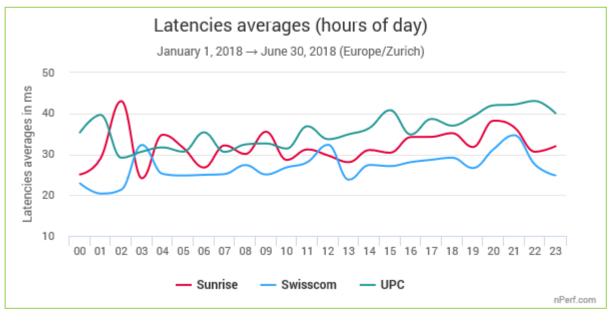
It is the provider Swisscom which offers the best average latency to its subscribers during the first half of 2018.





This graph illustrates the ability of providers to maintain a constant latency during the period, regardless of network load (number of connected clients). We note that UPC has drastically improved its latency in the second quarter to join its competitors.

perf



The lowest value is the best.

4 You too, participate in the nPerf panel!

To participate in the panel, simply test your connection on the website <u>www.nperf.com</u>. For mobile Internet, you can also use the nPerf app, available for free on the Apple AppStore for iPhone and iPad, on Google Play for Android devices and on the Windows Store for Windows Phone and Windows Mobile devices.

5 Custom analysis & contact

Do you need further study or want to get the raw data, punctually or automatically, to compile it yourself?

You can contact nPerf via <u>www.nPerf.com</u> "Contact Us" section or directly from the mobile app.

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