Mobile networks performance in Ghana January 2021

About SpeedChecker

Since 2008 we have helped millions of users get a better understanding of how to make their Internet go faster. Our solutions empower mobile and fixed operators, regulators and researchers in making their Internet infrastructure better and more available for everyone.

We do that by providing end-users tools such as websites or mobile apps and offer crowdsourcing systems and data to the businesses and organizations.

We collect real world end user experience through our passive and active measurement technology, combined with unique regional and global partnerships with thousands of apps.

More about SpeedChecker here

SPEEDCHECKER

About the data

Total number of samples: 71,333
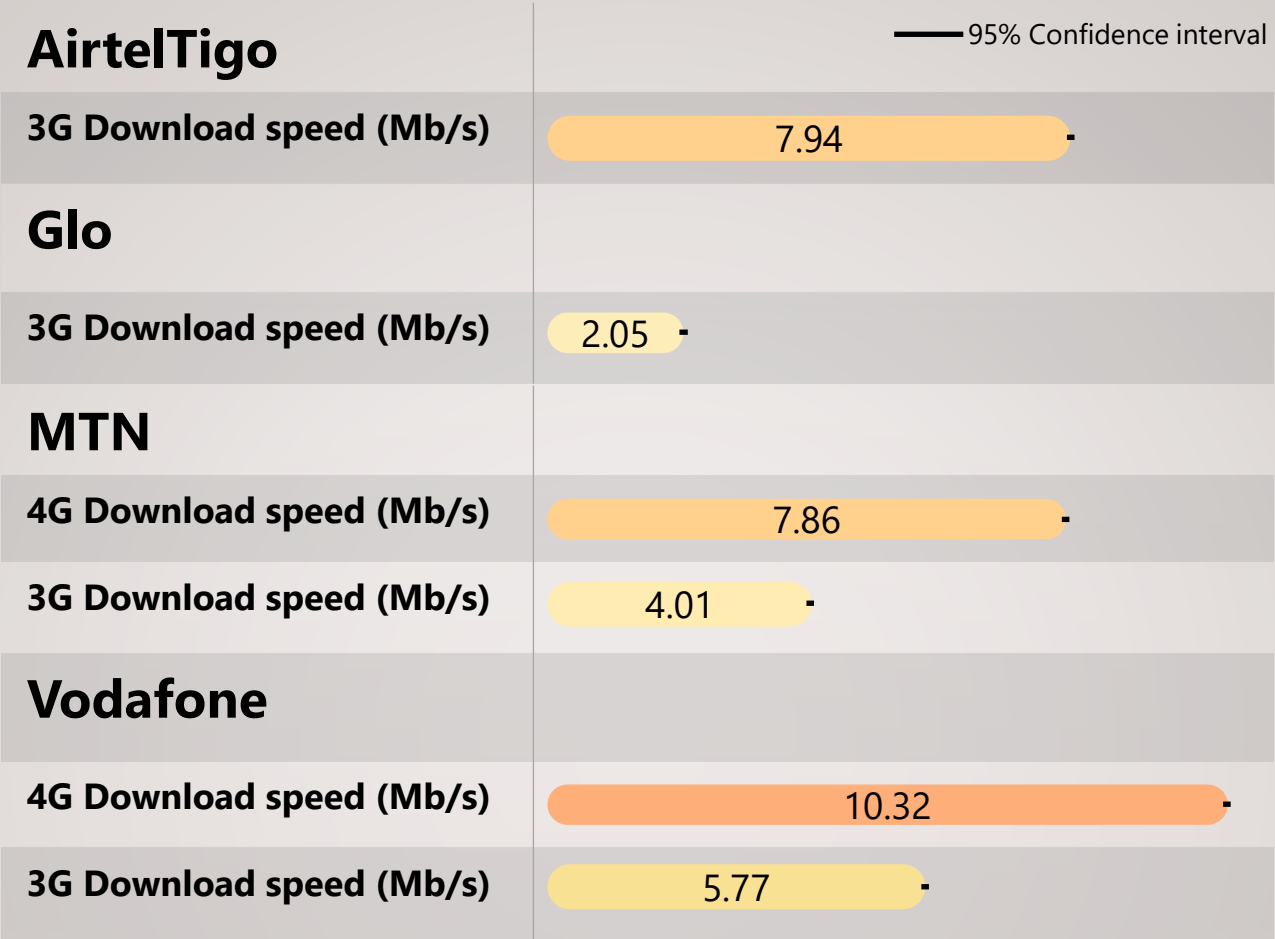**Total number of unique devices:** 25,953
Data collection period: 5 January - 2 February 2021

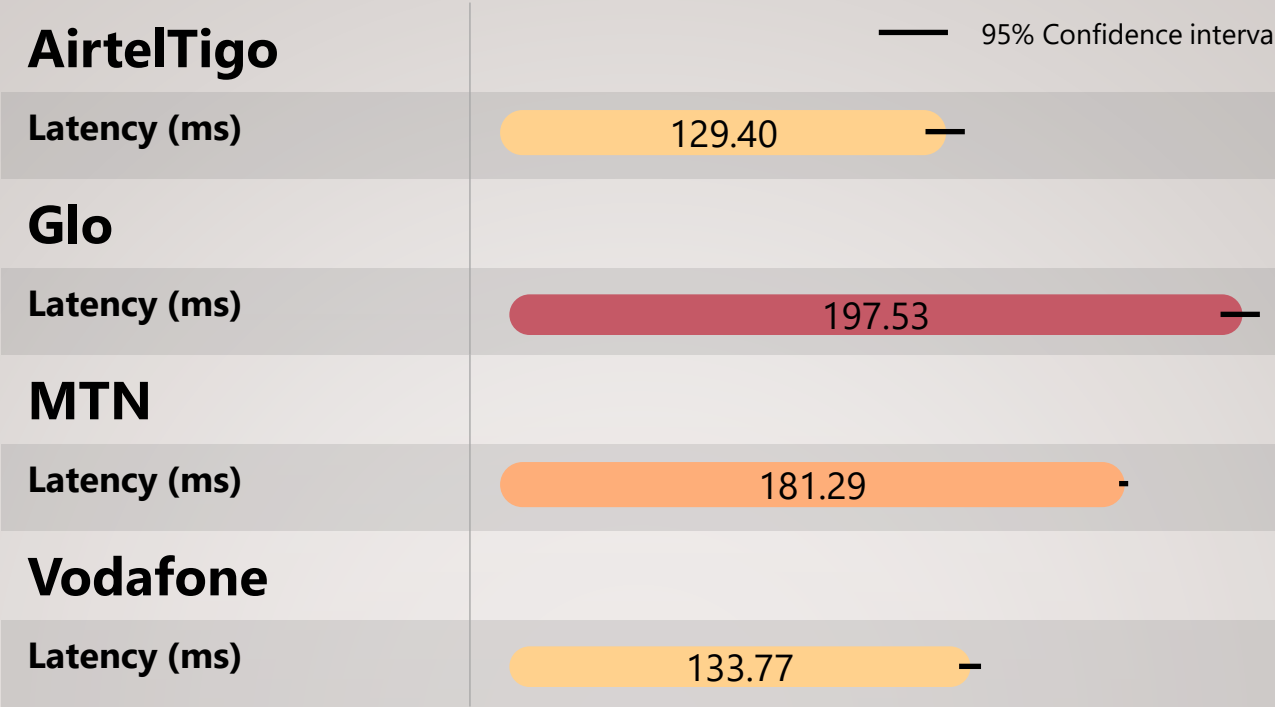See our [data collection](#) & [measurement methodology](#)

MNO speed benchmark

		▬▬ 95% Confidence interval

AirtelTigo

Download speed (Mb/s)	6.78
Upload speed (Mb/s)	1.53

Glo

Download speed (Mb/s)	2.10
Upload speed (Mb/s)	0.8

MTN

Download speed (Mb/s)	7.42
Upload speed (Mb/s)	4.26

Vodafone

Download speed (Mb/s)	9.30
Upload speed (Mb/s)	5.56

MNO 4G and 3G download speed benchmark

AirtelTigo

— 95% Confidence interval

3G Download speed (Mb/s)   7.94

Glo

3G Download speed (Mb/s)   2.05

MTN

4G Download speed (Mb/s)   7.86

3G Download speed (Mb/s)   4.01

Vodafone

4G Download speed (Mb/s)   10.32

3G Download speed (Mb/s)   5.77

MNO latency benchmark

AirtelTigo

━ 95% Confidence interval

| Latency (ms) | 129.40 ━ |

Glo

| Latency (ms) | 197.53 ━ |

MTN

| Latency (ms) | 181.29 ▪ |

Vodafone

| Latency (ms) | 133.77 ▪ |

MNO 4G Availability benchmark

AirtelTigo

4G availability (%)	N/A

GLO

4G availability (%)	N/A

MTN

4G availability (%)	89.99

Vodafone

4G availability (%)	73.52

Regional comparison of MNO download speed performance

AirtelTigo

GLO

Legend:
- 15+ Mb/s
- 10...15 Mb/s
- 7...10 Mb/s
- 5...7 Mb/s
- 3...5 Mb/s
- 0...3 Mb/s

MTN

Vodafone

Legend:
- 15+ Mb/s
- 10...15 Mb/s
- 7...10 Mb/s
- 5...7 Mb/s
- 3...5 Mb/s
- 0...3 Mb/s
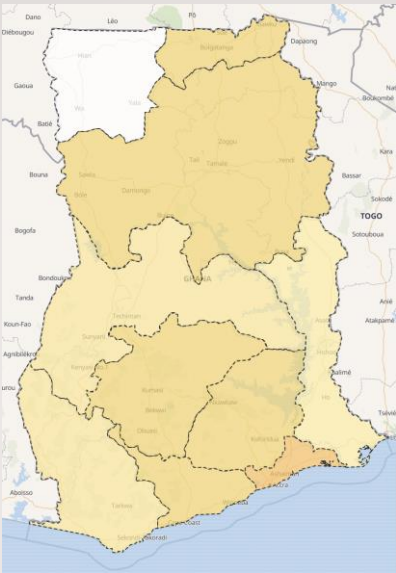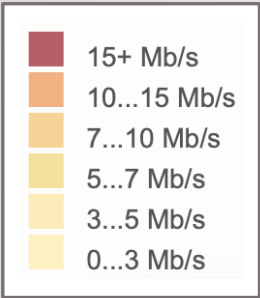
Following table shows average download speeds in different regions of Ghana. The 2nd column is an average of all MNOs in a particular region.

The fastest regions are at the top of the table.

District	All operators	AirtelTigo	Glo	MTN	Vodafone	Test count #
Upper West	8.63	8.56	-	6.38	12.28	586
Greater Accra	8.11	7.44	2.22	8.47	9.87	34211
Brong Ahafo	7.35	3.73	0.81	7.1	8.4	3902
Ashanti	6.99	6.25	2.01	6.86	10.23	13253
Upper East	6.84	6.12	1.09	5.65	9.62	790
Central	6.69	5.89	1.22	6.43	9.43	5141
Northern	6.56	6.58	-	6.58	6.52	2772
Eastern	6.46	5.52	1.6	6.69	6.45	3825
Western	6.22	3.86	1.76	5.91	9.19	4576
Volta	5.71	2.64	0.99	5.97	5.26	1852

MNO download speed performance in Accra
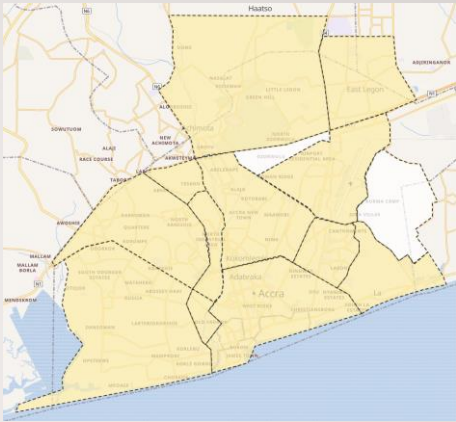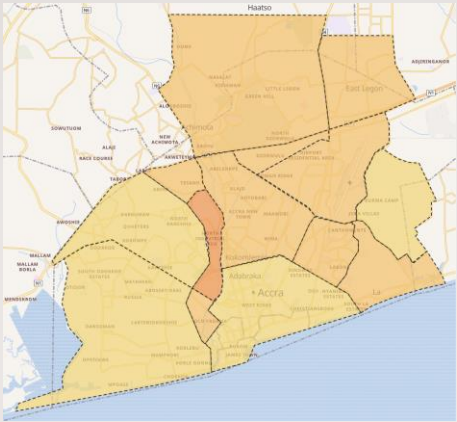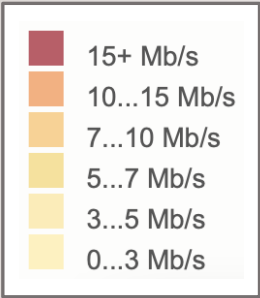
ARE YOU LOOKING FOR MORE DETAILED CROWDSOURCED DATA IN GHANA ?

What you see in this free report is a high-level snapshot of the crowdsourced data we offer to our clients. Our crowdsourcing system contains billions of data points collected from mobile devices worldwide. Unlike our competitors, we can sell access to the data with different granularity: Our clients can pick data they need with significant cost savings associated with a reduced scope.

CONTACT US FOR MORE INFORMATION

Flexibility is in our DNA

Our customers value our flexible and modular approach in delivering our solutions. There is no one size fits all in providing crowdsourcing projects. Customers increasingly require tailored solutions which will satisfy all technical, operational and legal requirements.

With reduced scope comes reduced price. Our Basic KPI set is a more cost effective way to get speed test data. Our Advanced KPI set is more comprehensive with 100+ active and passive KPIs.

Crowdsourcing is about trade-offs. Do you want more tests or do you want tests to run longer ? Do you want to collect data passively without impacting the network and user bandwidth or run active tests which will stress and assess the capacity better?

Do you want us to host the solution for fast & easy deployment or require data to be within your data center for compliance reasons.
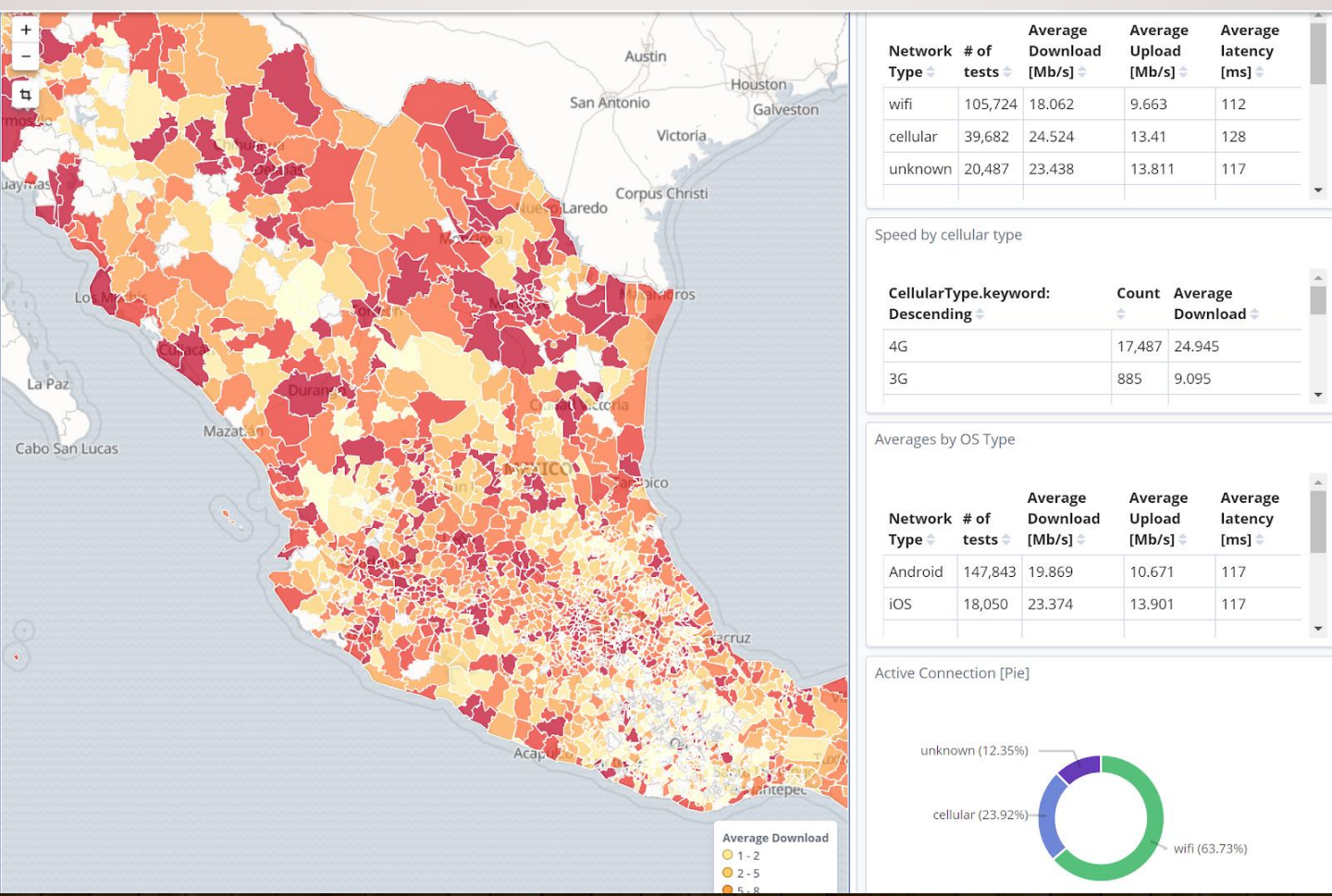
You not only want the data but you also want your own app or web-based tester? We can do it all. Our team can produce iOS, Android, HTML, Windows and MAC clients tailored to your specific needs.

[CONTACT US FOR MORE INFORMATION](#)

Basic Crowdsourcing System

System offers full analytical options like our Advanced system but with the limitation of a smaller Basic KPI set. Basic KPIs include speed test data along with device and network information but do not contain detailed Radio KPIs nor passive measurements.

Network Type	# of tests	Average Download [Mb/s]	Average Upload [Mb/s]	Average latency [ms]
wifi	105,724	18.062	9.663	112
cellular	39,682	24.524	13.41	128
unknown	20,487	23.438	13.811	117

Speed by cellular type

CellularType.keyword: Descending	Count	Average Download
4G	17,487	24.945
3G	885	9.095

Averages by OS Type

Network Type	# of tests	Average Download [Mb/s]	Average Upload [Mb/s]	Average latency [ms]
Android	147,843	19.869	10.671	117
iOS	18,050	23.374	13.901	117

Active Connection [Pie]

unknown (12.35%)

cellular (23.92%)

wifi (63.73%)

Average Download
○ 1 - 2
○ 2 - 5
○ 5 - 8

Advanced Crowdsourcing System

Step up from our Basic system to our Advanced Crowdsourcing system with more than 100+ KPIs to analyse

Coverage Analysis Dashboard

- ✓ Statistical research on basis of millions of crowdsourced samples
- ✓ Multiple signal metrics RSRP, RSRQ, SNR, RSSI, CQI
- ✓ Split by MNO, Radio Access Type, Band (down to individual ARFCN)
- ✓ Possibility to filter by: speed (e.g. High-Speed Train Scenarios)
- ✓ Possibility to separate samples between Indoor/Outdoor
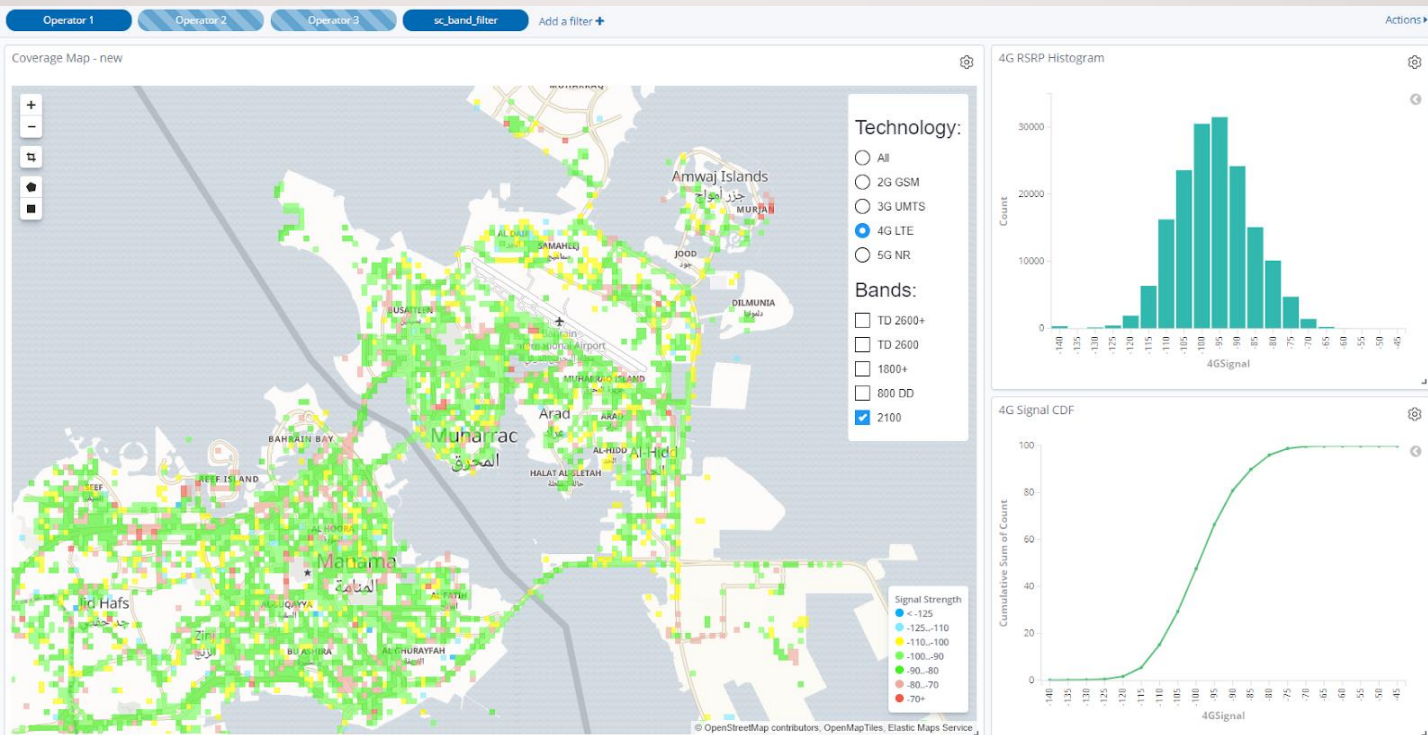
Advanced Crowdsourcing System

Frequency Bands Dashboard

The Frequency Bands Dashboard reveals frequency usage for different areas and comparison between operators. It is grouped by RAT, band number and ARFCN.
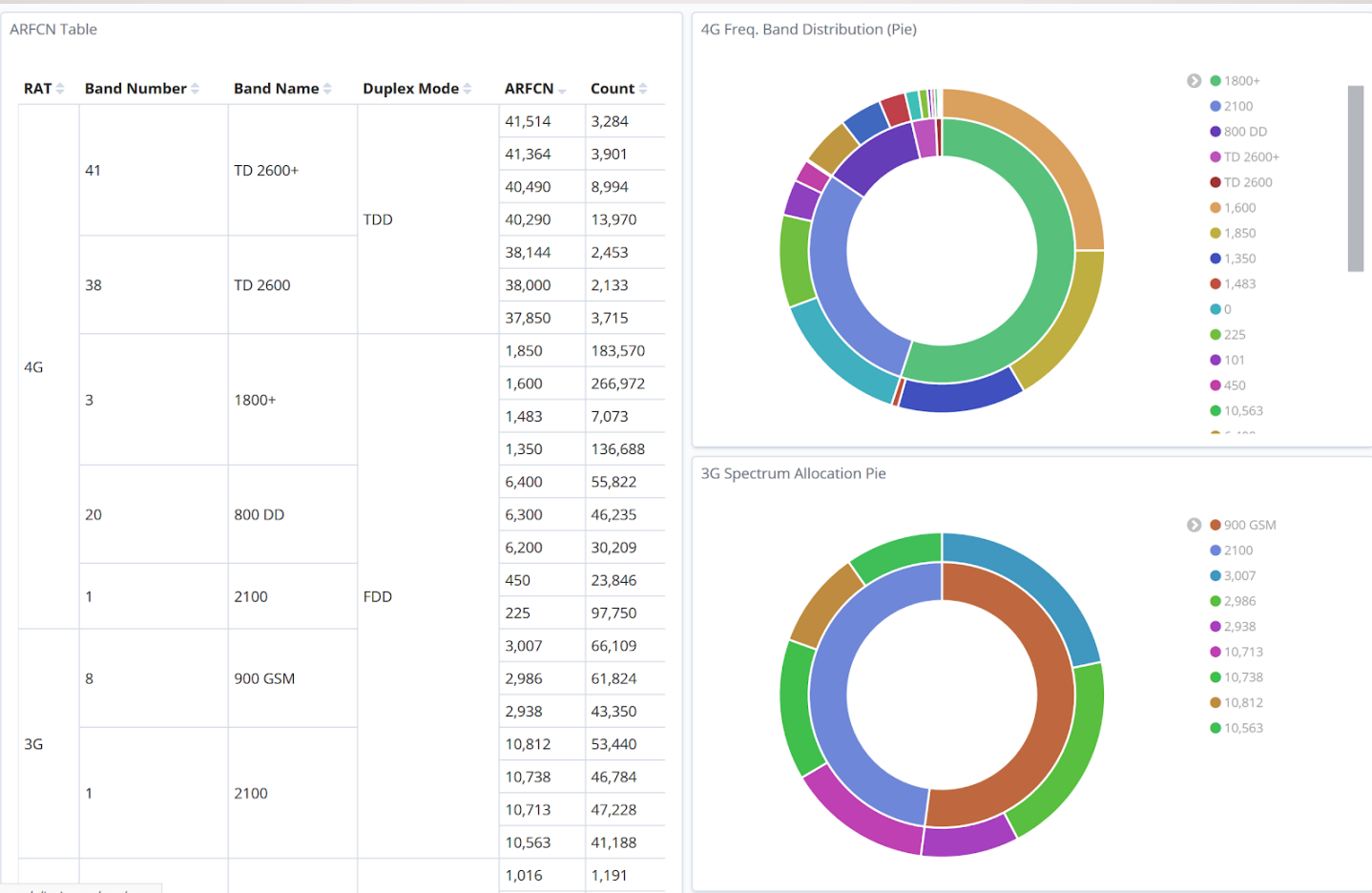
Advanced Crowdsourcing System

Cellular Data Usage Dashboard

The Cellular Data Usage dashboard shows the locations with the highest traffic demands to suggest to the operators which areas would benefit from additional investment or where network expansion might be required.
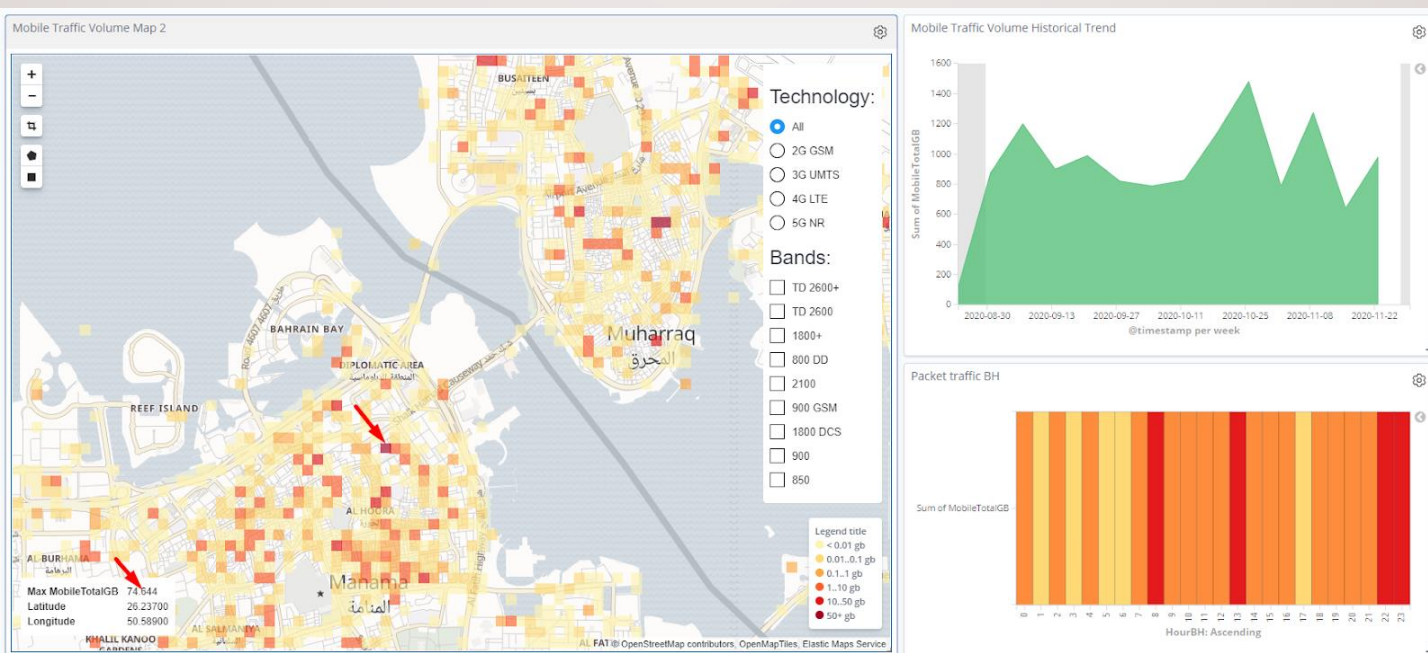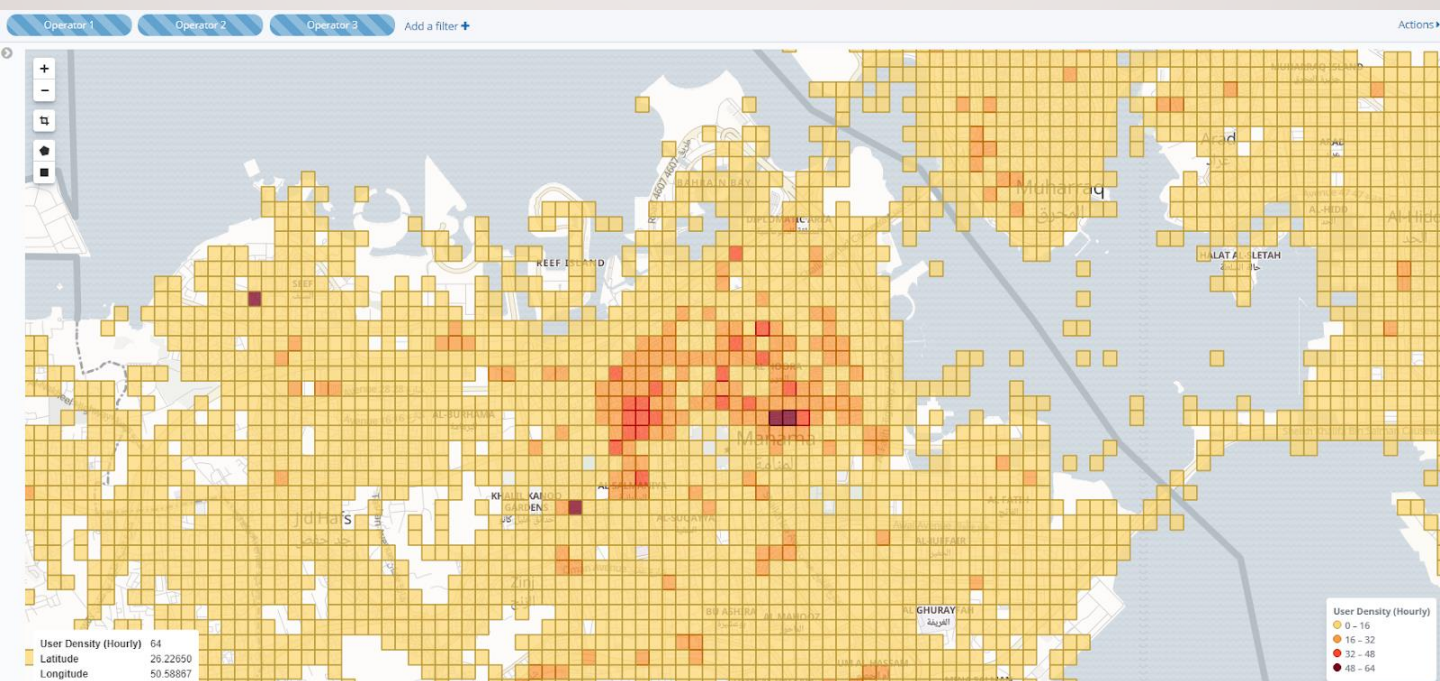
Advanced Crowdsourcing System
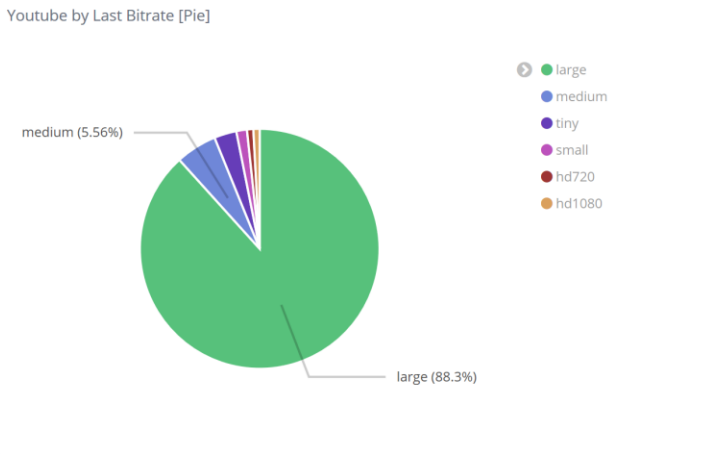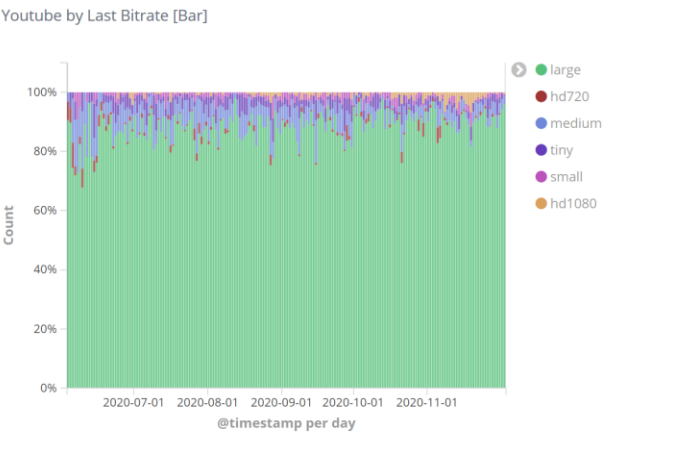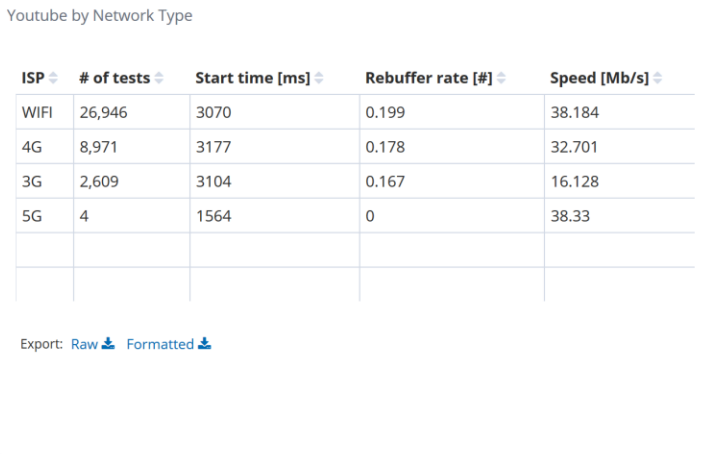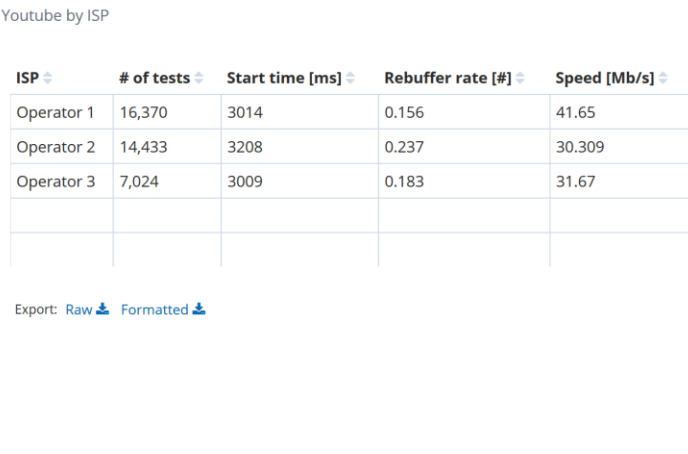
User Density Map

The User Density Map shows the locations with the highest subscriber density to suggest to the operators the areas where additional investments into network expansion might be required.

Advanced Crowdsourcing System

Video Experience dashboard

Streaming video apps such as YouTube or Netflix are being increasingly used by consumers who expect the best video quality with low start-up time and no rebufferings. Our data can contain metrics such as video download speed, streaming bit rate, start-up time and more.

Youtube by ISP

ISP	# of tests	Start time [ms]	Rebuffer rate [#]	Speed [Mb/s]
Operator 1	16,370	3014	0.156	41.65
Operator 2	14,433	3208	0.237	30.309
Operator 3	7,024	3009	0.183	31.67

Export: Raw 🔽 Formatted 🔽

Youtube by Network Type

ISP	# of tests	Start time [ms]	Rebuffer rate [#]	Speed [Mb/s]
WIFI	26,946	3070	0.199	38.184
4G	8,971	3177	0.178	32.701
3G	2,609	3104	0.167	16.128
5G	4	1564	0	38.33

Export: Raw 🔽 Formatted 🔽

Youtube by Last Bitrate [Bar]
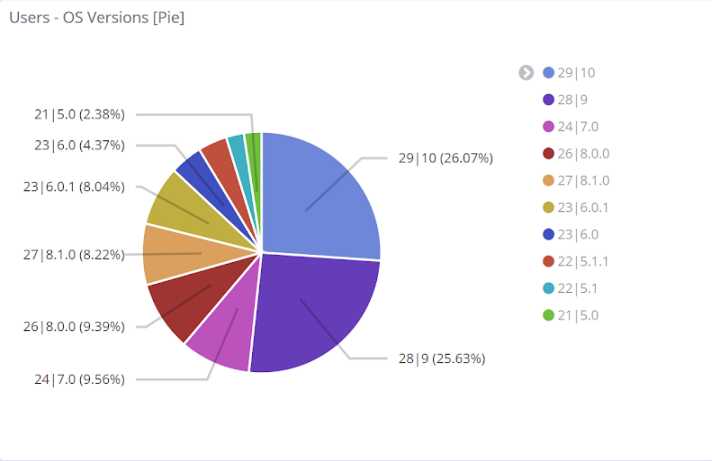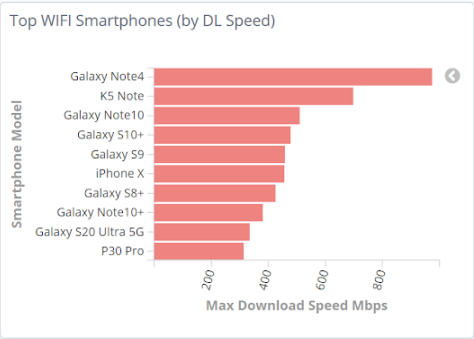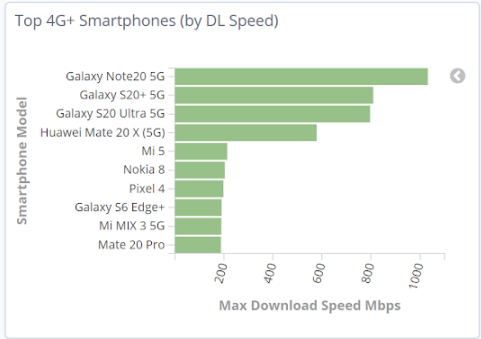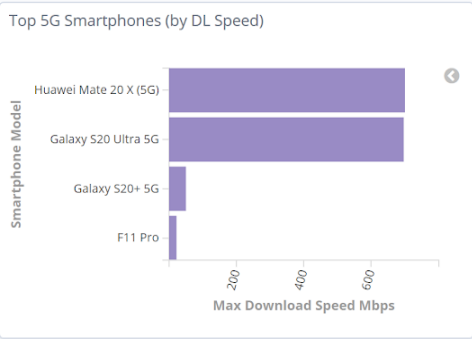
Youtube by Last Bitrate [Pie]

Advanced Crowdsourcing System

Device Information Dashboard

The Device Information dashboard contains information about devices that are in use for each operator as well as all the performance KPIs. Specific relevant device KPIs are:

- ✓ Model name
- ✓ Manufacturer
- ✓ OS version
- ✓ Platform (iOS/Android)
- ✓ Top 5G / 4G / Wifi smartphones

Top 5G Smartphones (by DL Speed)

Smartphone Model: Huawei Mate 20 X (5G), Galaxy S20 Ultra 5G, Galaxy S20+ 5G, F11 Pro — Max Download Speed Mbps (200, 400, 600)

Top 4G+ Smartphones (by DL Speed)

Smartphone Model: Galaxy Note20 5G, Galaxy S20+ 5G, Galaxy S20 Ultra 5G, Huawei Mate 20 X (5G), Mi 5, Nokia 8, Pixel 4, Galaxy S6 Edge+, Mi MIX 3 5G, Mate 20 Pro — Max Download Speed Mbps (200, 400, 600, 800, 1000)

Top WIFI Smartphones (by DL Speed)

Smartphone Model: Galaxy Note4, K5 Note, Galaxy Note10, Galaxy S10+, Galaxy S9, iPhone X, Galaxy S8+, Galaxy Note10+, Galaxy S20 Ultra 5G, P30 Pro — Max Download Speed Mbps (200, 400, 600, 800)

Users - OS Versions [Pie]

- 29|10 (26.07%)
- 28|9 (25.63%)
- 24|7.0 (9.56%)
- 26|8.0.0 (9.39%)
- 27|8.1.0 (8.22%)
- 23|6.0.1 (8.04%)
- 23|6.0 (4.37%)
- 21|5.0 (2.38%)

Legend: 29|10, 28|9, 24|7.0, 26|8.0.0, 27|8.1.0, 23|6.0.1, 23|6.0, 22|5.1.1, 22|5.1, 21|5.0

Users - OS Versions [Table]

OS Version	Users
29	10	1427
28	9	1403
24|7.0	523
26|8.0.0	514
27|8.1.0	450
23|6.0.1	440
23|6.0	239
22|5.1.1	215
22|5.1	132
21|5.0	130

Advanced Crowdsourcing System

Voice Quality Dashboard

The Voice Quality dashboard shows the user issues visualized on a map to spot any areas where users are making calls and their quality is not satisfactory or calls are being dropped. In the example below we see two areas where the call drop is particularly high and may benefit from further investigation.
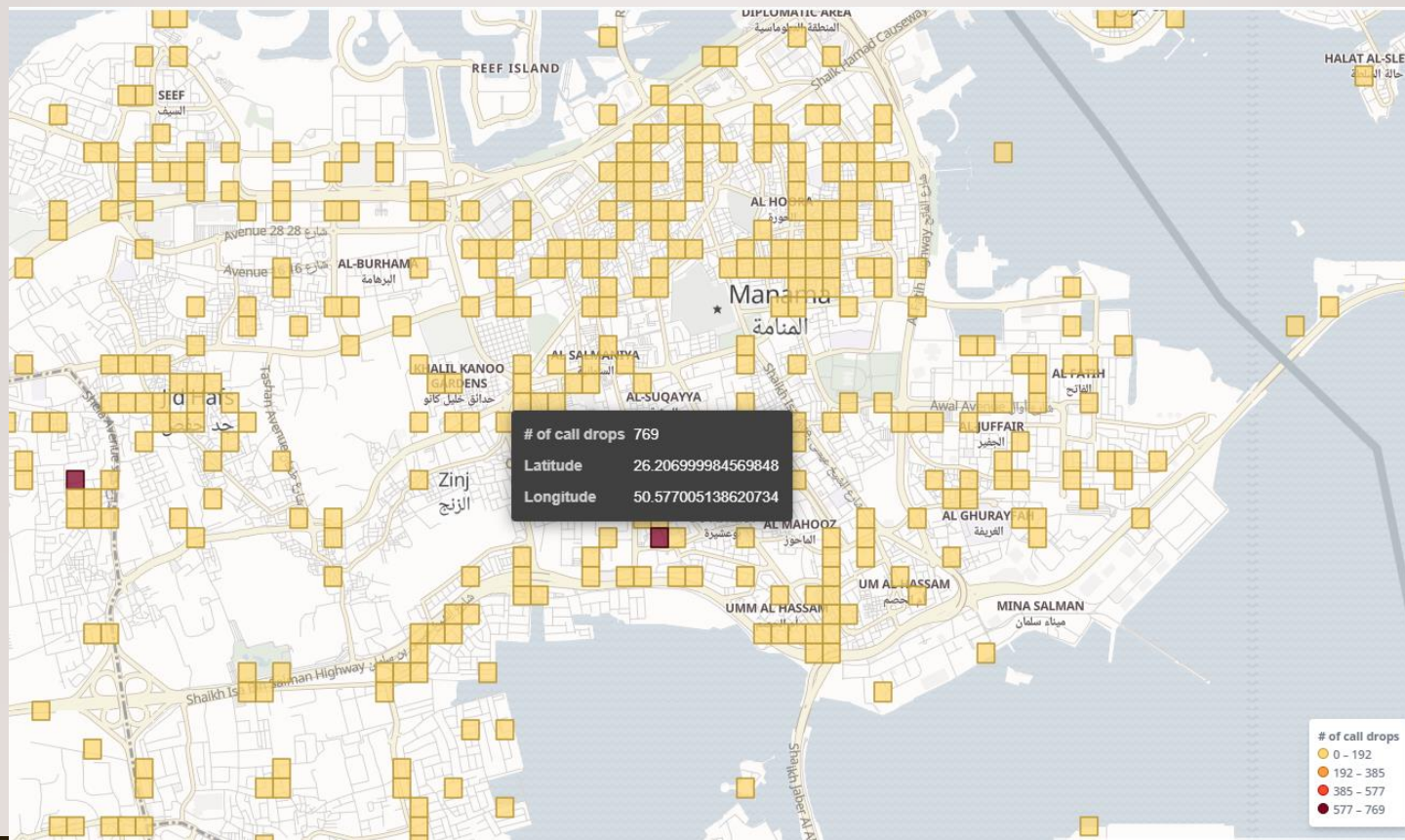
Data collection methodology

Our data is collected from end user devices running Android and iOS systems. All measurements are executed towards a CDN which has a large geographical footprint and hosts a significant part of the content that is being accessed by the users. This ensures our results are a good approximation of the user's actual quality of experience.

All measurements must contain accurate location information using GPS or wi-fi geolocation method. Measurements are considered only from the apps that have been approved by SpeedChecker. Submitted measurements are checked if they are within expected ranges and additional security precautions are implemented to ensure measurement data is not being manipulated.

The data collection process aims to deliver a single measurement sample from every device in our crowdsourcing system device pool and we strive to remove all duplicates. Due to privacy settings on some users phones we cannot reliably detect unique devices therefore some devices have contributed to more than 1 measurement into this dataset.

CONTACT US FOR MORE INFORMATION

Measurement methodology

The methodology is based on the concept of the ITU-T Q.3960 (2016), "Framework of Internet related performance measurements" and "Supplement 71 to ITU-T Q-series Recommendations".

This test methodology aims at delivering an accurate measurement of the maximum bandwidth available over a given internet connection. This is achieved by transferring multiple parallel data streams over separate TCP connections within a predefined amount of time. The transferred data consists of randomly generated data with high entropy.

#	Parameter	Unit	ITU Range	Current Setting
1	Number of parallel threads	#	$1 \leq n \leq 10$	Dynamic addition from 1 to 10
2	Duration of pre-test	s	$0 \leq Tp \leq 5$	1s
3	Duration of the downlink test	s	$5 \leq Td \leq 15$	5s
4	Duration of the uplink subtest	s	$5 \leq Tu \leq 15$	5s
5	Number of 'pings' during delay subtest	s	$5 \leq p \leq 20$	$p = 10$

CONTACT US FOR MORE INFORMATION