

# Global State of Mobile Networks (February 2017)

In OpenSignal's latest look at overall speeds around the world, we found that speeds are steadily on the rise as LTE continues to displace 3G. Even though fast 4G connections have become the norm in dozens of countries, Wifi remains an important technology for smartphone users. Drawing on 19 billion samples collected by more than 1 million OpenSignal users, we break down the network performance of 87 countries globally.

## Report Facts



19,257,135,678 Measurements



1,095,667 Test Devices



Nov 1st 2016 - Jan 31st 2017 Sample Period



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## Highlights

### East Asia, Northern Europe are still dominant

The same 10 countries kept their spots at the top of our overall speed rankings, though their order has changed since our last global report. Northern and eastern European countries like the Netherlands, Sweden and Hungary join Asian powerhouses South Korea, Japan and Australia in providing overall average speeds over 21 Mbps.

### South Korea wins the overall speed crown

Once again South Korea tops our overall speed table, delivering a typical mobile data download connection of 37.5 Mbps in our tests. We measured overall speeds of 30 Mbps or greater in only three other countries.

### Wifi remains an important mobile technology

While 4G continues to extend its reach and speed across the globe, Wifi's importance as a mobile data technology hasn't waned. In 38 countries, our smartphone users spent more time connected to Wifi than did to cellular networks.

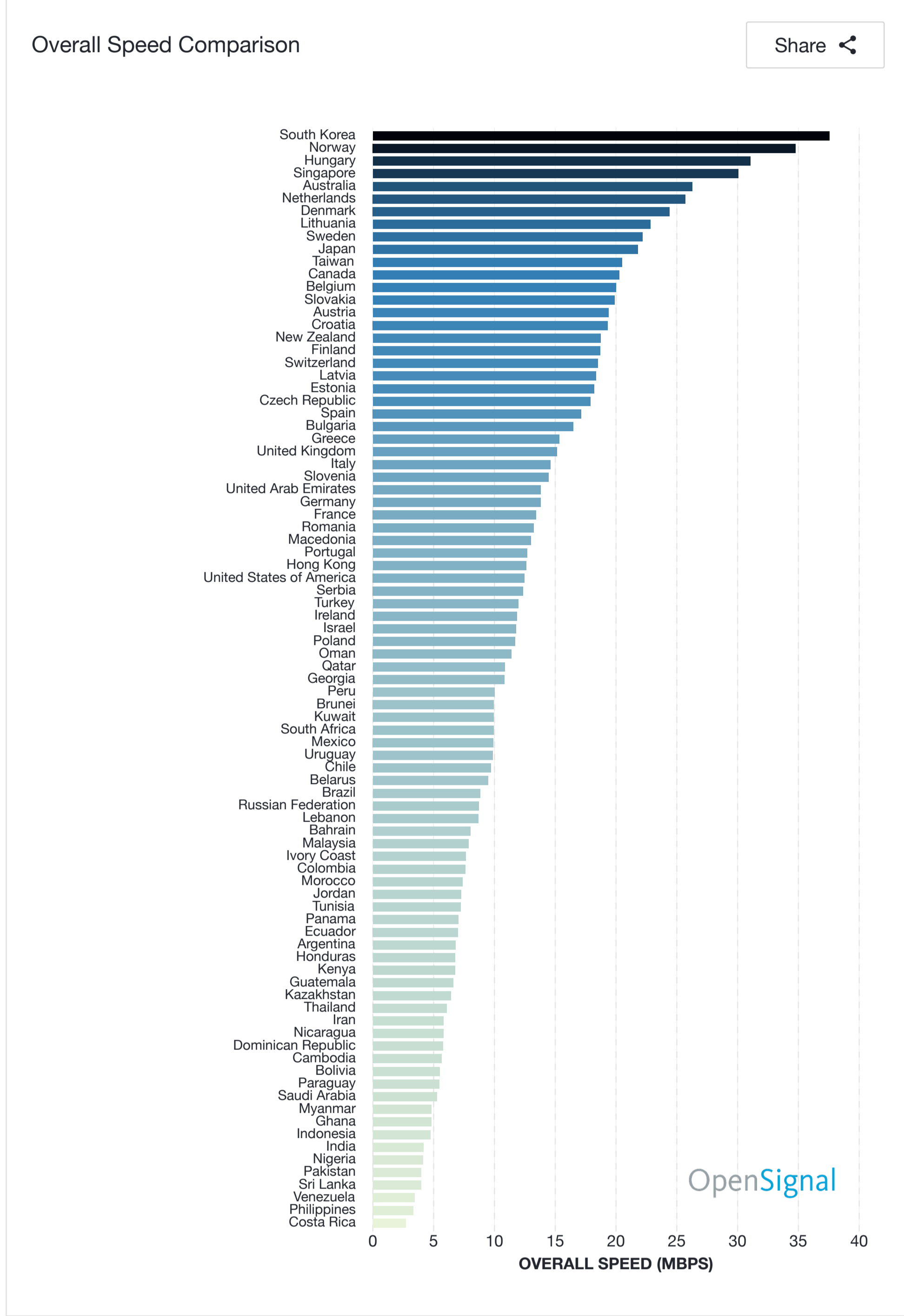
### Netherlands leans on Wifi the most

No country topped the Netherlands when it came to time spent on Wifi. Our users in that country were connected to a Wifi access point 68.5% of the time. The Netherlands also had some of the fastest overall cellular data speeds in the world, which shows having a good 3G or 4G connection doesn't necessarily lead to showing Wifi.

## Overall Speed

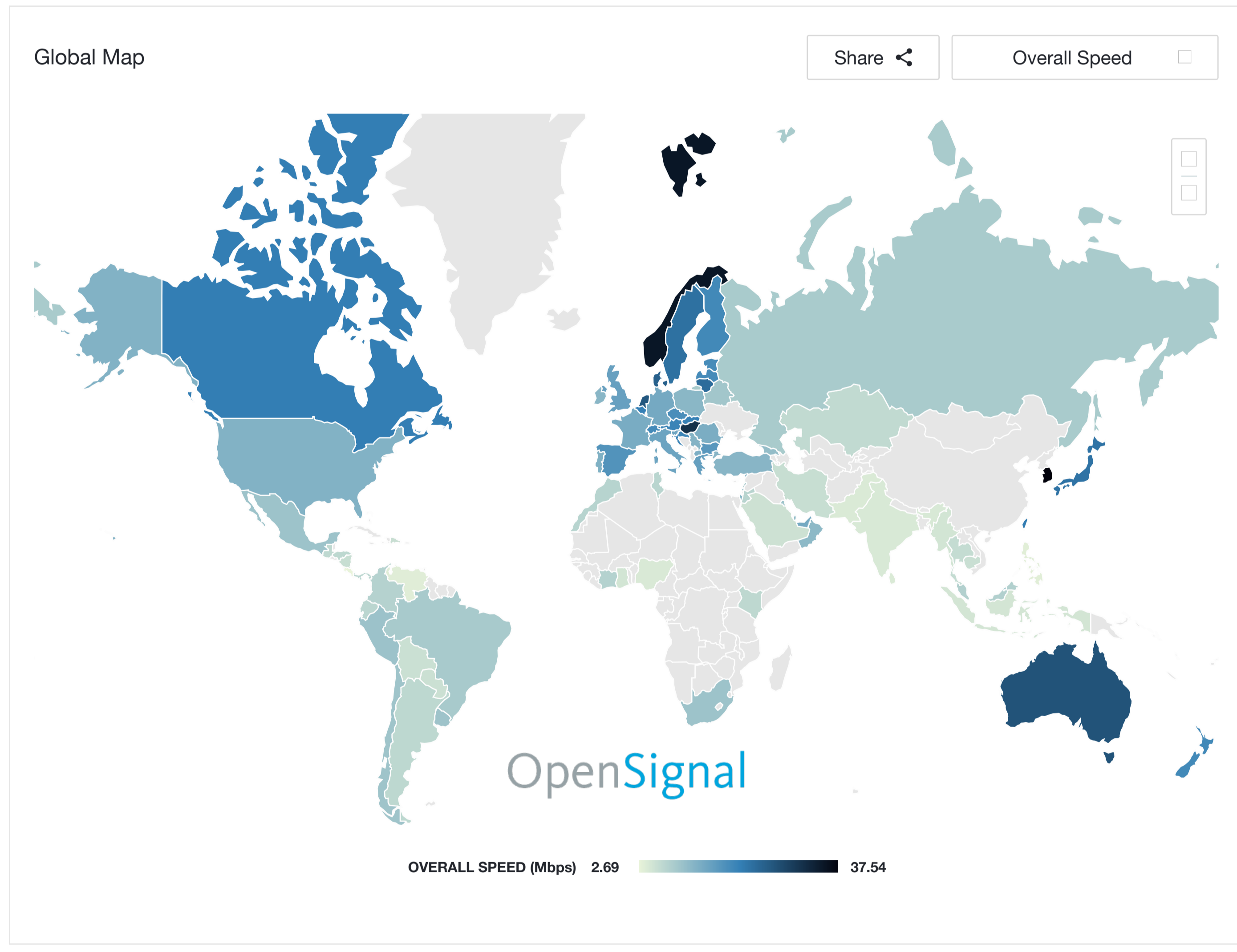
This chart shows the overall speed that users in each country see over its data networks. We define overall speed as the average mobile data connection a user experiences based on both the speeds and availability of a country's 3G and 4G networks.

Overall speed measurements vary considerably from country to country depending on their particular stage of 3G and 4G development. For instance a country with fast LTE speeds but low 4G availability might have a much lower overall speed than a country with moderate LTE speeds but a very high level of 4G availability.



## The Global Picture

All of the countries examined in this report are shown on this interactive map, detailing the distribution of mobile networking capabilities across the world. Those countries that perform better in a particular metric are shaded darker, and you can select different metrics to view in the drop down menu. Countries not included in this report are shaded in grey. Our sample only included the countries in which we had enough test data to make a statistically meaningful analysis. As our crowdsourced user base grows, though, we'll continue to add more countries to our reports.



## Analysis

As 4G proliferates across the globe it's having a big impact on the typical connection speeds mobile consumers see on a daily basis. Since our [last global mobile networks report](#), we've seen average overall mobile data speeds increase steadily in countries worldwide. But we're also seeing continued reliance on Wifi networks as supplemental means of accessing the mobile internet. We may be in the 4G age, but, as always, consumers are using a multitude of wireless technologies.

First let's take a look at speed. For our Global State of Mobile Networks report, OpenSignal looked not at 4G or 3G speed individually, but rather at the aggregate speed our users experienced across all of a country's mobile data networks. We feel that measurement paints a more holistic picture of the typical mobile data experience as it factors in not only the performance of different types of networks, but the amount of access customers have to each of them.

As you can see from our chart detailing the overall speeds of 87 different countries the performance range between countries is quite broad, starting at less than 3 Mbps but rising to more than 30 Mbps. The fastest country in our ranking was South Korea, which led our last report as well, with an average download of 37.5 Mbps. Norway, Hungary and Singapore also had overall speed averages higher than 30 Mbps. That's a high bar to achieve, as it requires not only having powerful LTE networks but also extremely high access to those 4G connections.

While we did see South Korea's overall speed score fall since [our last report](#) (from 41.3 Mbps), in general we're seeing speeds improve steadily at the top of our list. In our August report, only nine countries had an average overall speed of 20 Mbps or greater. In our latest round of tests, the number of countries having 20 Mbps or faster in our latest round has risen to 13. Those top performers have largely remained the same, dominated by South Korea, Singapore, Japan and Australia in the east and a handful of northern and eastern European countries in the west. The only country on another continent to break the 20 Mbps barrier in our tests was Canada.

In the bottom half of the chart, we see a lot of the developing nations, many of which are still in the early stages of their 4G rollouts. Roughly in the middle of our chart sits the U.S., which was one of the first countries to launch LTE and has one of the highest rates of 4G penetration in the world. But U.S. LTE networks are on the slow side, which brings down the country's overall score. In comparison, many western European countries have extremely fast LTE connections, which puts them in the upper third of our rankings. But their relatively low 4G availability keeps them from reaching the upper ranks. Their users are still relying on 3G connections a good portion of the time.

The second metric we looked at was time on Wifi, which translates into the proportion of time our users spent connected to a Wifi access point rather than a cellular network. The range of Wifi use was also quite broad with our Nigerian users spending just over 10% of their time connected to Wifi networks, while in Netherlands Wifi connections accounted for a full two-thirds of our testers' share of the world but that in no way steered users away from Wifi. Meanwhile in many developing and African and Asian countries, Wifi use was much less pronounced, which is likely indicative of their less robust broadband infrastructure. There are plenty of outliers that make detecting distinct Wifi usage patterns difficult though.

In general though, we see a high proportion of time spent on Wifi in the majority of the 96 countries we analyzed. Specifically, 38 of those countries had time on Wifi scores of 50% or greater, meaning in a large part of the world our users are spending as much time connected to Wifi networks as they are cellular networks. Rather than acting as a mere supplement to 4G networks, Wifi remains as important a technology as any cellular system in mobile communications.

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### Our Methodology

OpenSignal data is collected from regular consumer smartphones and recorded under conditions of normal usage. As opposed to drive-testing — where a single device is used to measure network performance in a small number of locations — we take our measurements from millions of smartphones owned by normal people who have downloaded the OpenSignal app.

Those measurements are taken wherever users happen to be, whether indoors or out, in a city or in the countryside, representing performance the way users experience it. For more information on how we collect and analyze our data see our [methodology page](#).

For this particular report, 19,257,135,678 datapoints were collected from 1,095,667 users during the period: Nov 1st 2016 - Jan 31st 2017.

All data has been collected from users of the OpenSignal mobile app for [Android](#) or [iOS](#).

For every metric we've collected the statistical confidence interval and plotted this on all of the graphs. When confidence intervals overlap for a certain metric we can't actually be sure which of the overlapping operators has the best performance.

For this reason some metrics have multiple operator winners when we've judged that the data is too close to call a victory.

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