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United States Senate
Committee on Commerce, Science, and Transportation

Broadband Mapping: Challenges and Solutions

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OOKLA

INTRODUCTION

Chairman Wicker, Ranking Member Cantwell and members of the Committee, thank you for the opportunity to testify today on Broadband Mapping: Challenges and Solutions.

My name is Chip Strange, and I am the Vice President of Strategic Initiatives at Ookla, LLC, where I am responsible for global strategic partnerships, industry relations and government affairs. Headquartered in Seattle, Washington, Ookla is the global leader in mobile and broadband network intelligence, testing applications and technology. We have 195 employees with deep expertise in fixed, mobile and Wi-Fi network technologies, data science, mapping solutions, applications development and machine learning. Together, we support many of the largest telecommunications companies in the world—including large, medium and small service providers in the United States. We are a data provider to United States federal and state governments and the exclusive global network performance data provider to the intelligence division of the mobile industry trade group GSMA.

We are part of Ziff Davis, the digital media subsidiary of J2 Global, a Los Angeles, California-based internet information and services company.

Ookla's family of companies includes Mosaik, a provider of network coverage, spectrum and infrastructure data and mapping software; Downdetector, a real-time digital services monitoring platform; and Ekahau, a provider of industry standard Wi-Fi network planning and site survey tools.

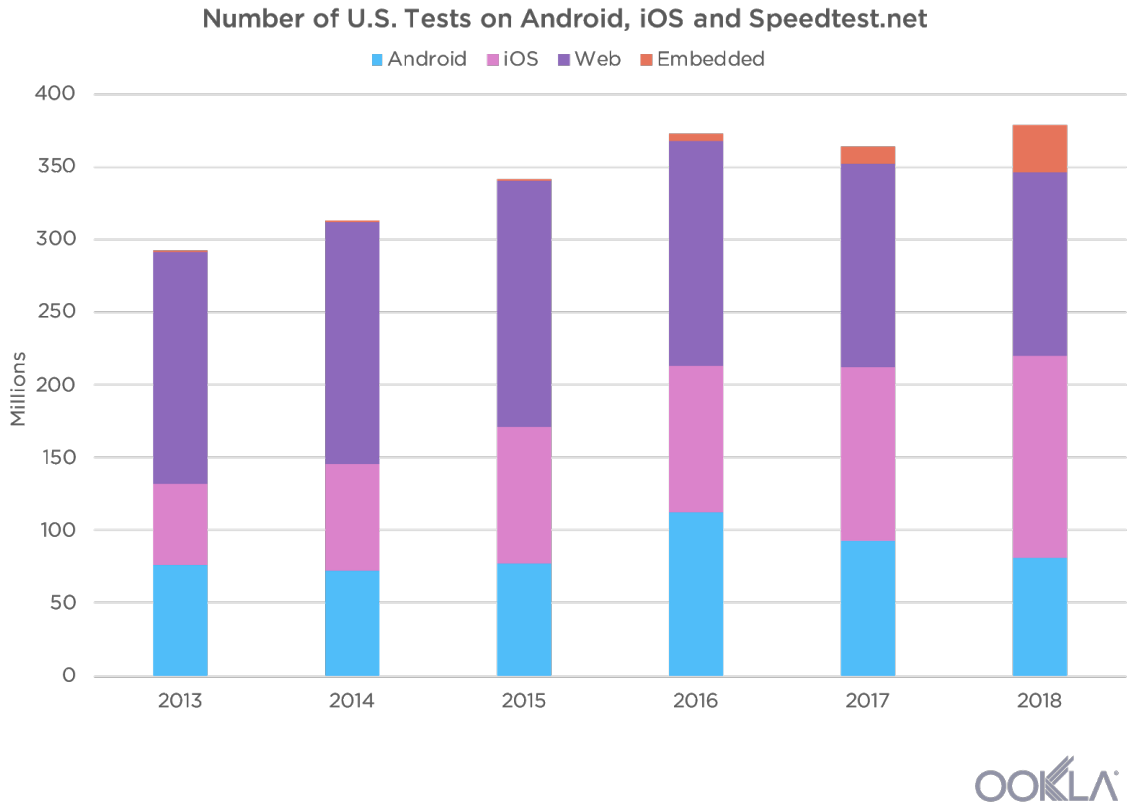
One of our core principles is providing transparency on the state of the internet to three distinct constituencies—consumers, industry and governments.

- Ookla provides consumers with accurate information on the quality and performance of their own internet connections. We routinely share data insights with consumers through in-depth articles analyzing the state of global networks and a monthly updated ranking of countries by mobile and fixed broadband internet speed. We also consistently provide expert analysis and data to members of the press, academia and non-profits that are seeking substantiated information about networks.
- For the telecommunications industry, Ookla provides valuable benchmarking analytics to optimize and improve networks, assists operators by validating claims used in advertising campaigns and helps them position their networks to consumers and enterprises.
- Ookla provides governments and industry associations with accurate, unbiased and independent data about the performance and accessibility of the internet.

OOKLA IS AN UNBIASED SOURCE OF NETWORK COVERAGE AND PERFORMANCE DATA

Our flagship platform is Speedtest, which provides invaluable insights into the performance, quality and accessibility of networks worldwide. The Speedtest platform is available as a native application on computers, mobile devices, and Apple TVs, may be integrated into 3rd-party mobile applications, is embedded on consumer routers, and on Speedtest.net.

Since the launch of Speedtest in 2006, we have collected 23.4 billion consumer-initiated network performance tests. In 2018 alone, the global Speedtest community performed approximately 3.65 billion tests, of which 405 million occurred in the United States.

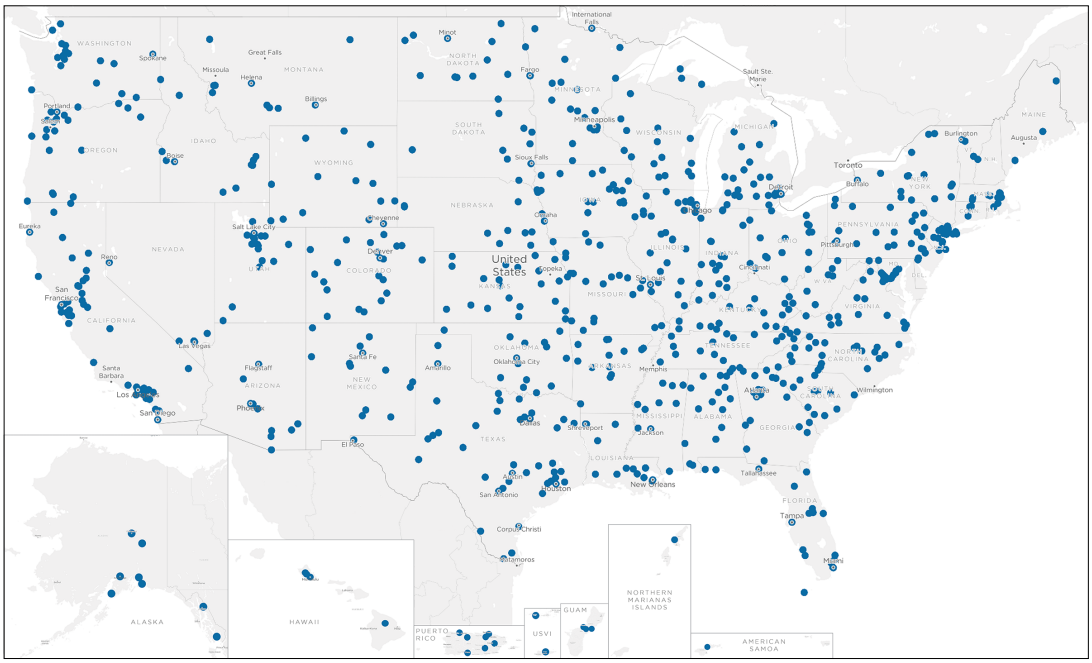


Number of Speedtest results in the United States by year from our Android, iOS, Web, and Embedded platforms.

Ookla's commercial mobile network database is updated quarterly and includes carrier-reported coverage patterns for 2,500 different networks built by more than 900 operators globally, of which 238 networks were built by 88 carriers in the United States. Our company's tower infrastructure database has approximately 451,000 vertical assets and represents the only curated database of its kind in the United States. As part of our efforts to paint the most accurate picture of mobile network availability, in 2018 we began collecting radio frequency measurements from Speedtest applications, enabling us to create hybrid mobile coverage maps that fuse both reported and measured coverage. During March of 2019 alone, Ookla collected over 6 billion mobile coverage measurements from 13 million devices globally.

Finally, to ensure we have the most accurate network performance measurements, we have an unprecedented 8,100 Speedtest servers worldwide, including 1,200 in the United States—and I am proud to say at least one server in every state and territory. If a consumer is measuring internet speeds in Mississippi, it's best to test to the nearest server, and our methodology dynamically selects the best server for that individual test to provide a more accurate portrayal of true internet performance.

SPEEDTEST U.S. Server Network April 2019



The culmination of all of these data points means that Ookla has a comprehensive view—both analytically and geographically—of fixed and mobile broadband networks across the United States.

OPPORTUNITIES IN BROADBAND MAPPING

As we all know, highly performant broadband networks help fuel American education, innovation, productivity and economic growth. Closing the digital divide and ensuring access to state-of-the-art connectivity is vital for full participation in the 21st century's educational system and economy. Many of the amazing technologies that empower businesses—in cities, suburbs, exurbs, rural communities and on farms—rely on fixed or mobile broadband to thrive.

Here are a few thoughts for the Committee's consideration:

Broadband data is a national key performance indicator.

Accurate broadband availability and performance data, analyses and mapping should be considered national key performance indicators. The United States should approach broadband infrastructure data like other economic KPIs, consistently measured and analyzed. It should not overly rely on one-time data collection activities, particularly when collected based only on data mandated by the Federal Communications Commission. This data is incomplete and out-of-date from the moment it is relied upon by policymakers. That outcome must and can be fixed.

Fixing poor maps is an economic problem, not a technological one.

Improving broadband maps demands more aspirational thinking, private-sector innovation and yes, considerably more funding. It also requires that the government focus on analyzing data provided by the private sector, and less on replicating technologies and creating datasets that already exist at scale in the marketplace. Let's leverage taxpayer dollars to activate and radically improve data density from successful products already in the market today, instead of the government building products that compete with the private sector.

Engage communities and embrace new approaches.

We need to embrace and explore diverse perspectives, from the industry, the federal government and the states, and run pilot programs to test different data collection options unbound by regulatory lag. We have mechanisms to harness the power of consumer crowd-sourcing to increase data availability across America, including data collection vehicles like drones, commercial fleets or other means where unique topographical or demographic challenges persist. Having run a pilot mobile network data collection program with a large commercial fleet, it is indeed viable and worth further exploration.

Move beyond the focus on speed.

Internet speed, latency and quality metrics will always be key components when assessing the reach and performance of networks. However, with edge computing, connected cars and other emerging use cases that require highly accessible mobile network access, new coverage and performance metrics such as percent time spent on LTE and/or 5G networks are also important to fully assess the quality of mobile networks. These new metrics will not only help policy makers steer investment in the right areas but may also be used to assess whether the entities receiving support are delivering on their promises. Furthermore, knowing where existing fiber and tower infrastructure exists will help reduce the costs to taxpayers when the government subsidizes networks constructed by private companies, while also accelerating their development.

Deploy government resources the right way.

Federal and state government workforces can be vital resources to augment existing datasets. State broadband mapping initiatives are generating pockets of really interesting data. FEMA, First Responders, USDA and other officials can help our government understand the state of networks to help build a stronger national broadband map, without impacting their missions. However, we must establish levels of methodological uniformity to ensure we don't repeat the mistakes of the past.

CONCLUSION

Ookla has globally respected methodologies, has developed applications to comprehensively collect massive amounts of data, and has the analytical prowess and data visualization tools necessary to make sense of it all. We operate with transparency and have a keen focus on respecting the privacy of our user communities. We are

trusted by consumers, industry and governments worldwide, and we are excited to help policy makers in the United States get the maps you need to help extend broadband networks to underserved and unserved areas.