



Technology
Innovation
Council

THE 2021 NETWORK TEST SURVEY

Service Providers on Subscriber Experience, COVID, and Disruptive Network Trends

A Technology Innovation Council Report
On Behalf of VIAVI Solutions





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Executive Summary

There's no question that 2020 will always carry the negative connotations of COVID-19 with its accompanying lockdowns and social distancing.

But, at a macro level, there was a broad positive for communications service providers (CSPs) in that 2020 was a proving ground for their networks. Their networks were tested by millions of people working and educating their children from home, and could easily have been overwhelmed as users battled the isolation of lockdowns through streaming, gaming and conferencing.

Despite huge increases in network traffic, service providers say their networks largely met the challenges created by the pandemic. Yet the massive uptick in unplanned network usage has brought into stark relief the importance of test, measurement and assurance. In creating this report, we directly surveyed communications service providers to assess how they fared in 2020, their perspectives on the importance of test, measurement and assurance, and where their priorities will lead them in 2021 and beyond.

Despite the COVID-19 pandemic, an overwhelming majority of service providers agree that in-person tech visits remain an essential part of activating, maintaining and troubleshooting network service

Key Findings

-  **More than two-thirds (70%)** of CSPs identify access network performance as the primary factor that most impacts subscriber experience, with transport network performance (41%) and core network performance (37%) also of concern.
-  **85% of respondents** stated that in-person network technician visits had been reduced or eliminated as a result of the pandemic, although 78% said that the change was temporary. More than 55% of service providers report a transition from instrument-based testing to remote, virtualized testing due to COVID-19.
-  **Virtualization (78%), automation (70%) and network slicing (70%)** are the strongest trends currently driving the need for service providers to utilize third-party testing, monitoring and assurance solutions.
-  **An overwhelming majority (93%)** believe that testing improves customer satisfaction and reduces churn. Nearly 80% of service providers agree that testing on the front end reduces the amount of operational expenditures needed to correct issues later.
-  **When asked about sources of test,** measurement and assurance solutions, a substantial majority (89%) of respondents agreed that vendors specializing in this area were essential to performance of the network.
-  **Seventy-eight percent strongly agree** that network monitoring and assurance using artificial intelligence (AI) and automation are necessary to optimize networks.

Survey Methodology

The 2021 Network Test Survey was answered by 54 members of The [Technology Innovation Council](#) (TIC), a unique research initiative that enables telecommunications service provider executives to provide insight into global business and technology trends.

The TIC comprises more than 120 members from 70+ service provider organizations in 40 countries. TIC members represent a wide range of job titles – CEO, CIO, CTIO, Chief Digital Officer, VP Architecture, Director of

Strategy Roadmap, Chief Evangelist, Head of Mobile, etc. – working for Tier 1 and Tier 2 global, regional and national service providers operating both wireless and wireline networks. Because TIC members are guaranteed anonymity, they are able to provide objective and knowledgeable feedback on relevant technology trends. The Technology Innovation Council was developed by a Research Analyst with more than 23 years of experience in telecoms and technology.

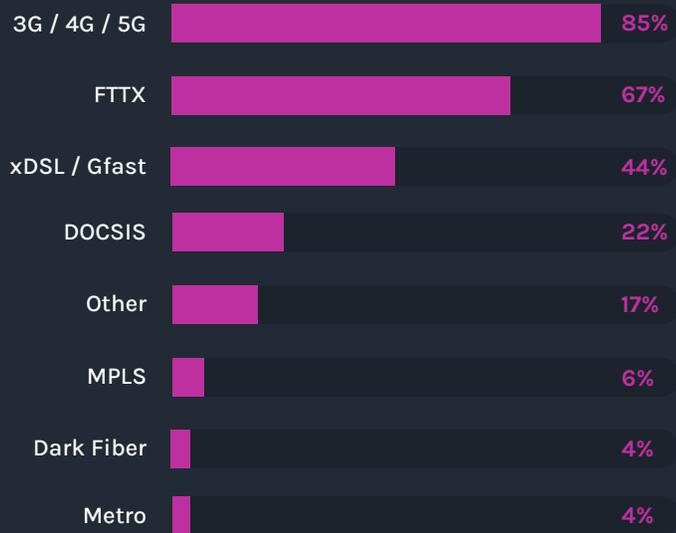


Figure 1. Types of networks operated by participants. Of the 54 service providers surveyed, nearly all of them operate more than one type of network.



Figure 2. Regional distribution of respondents. Participants represent telecommunications service providers worldwide.

How Do Test, Measurement & Assurance Impact Subscriber Experience?

Massive increases in network traffic wrought by COVID-19 underscored the importance of subscriber experience.

Seventy percent of service providers said the top factor that impacts subscriber experience

is access network coverage/performance. Service providers were then fairly evenly split as to the second biggest factor, including transport network performance (41%), core network performance (37%) and third-party network performance (28%).

When asked about the top factors impacting subscriber experience, a North American service provider noted, “In reality, most of these apply. But if I need to check two - they are access network coverage and performance in the core, which have the biggest impact to service accessibility and quality.”

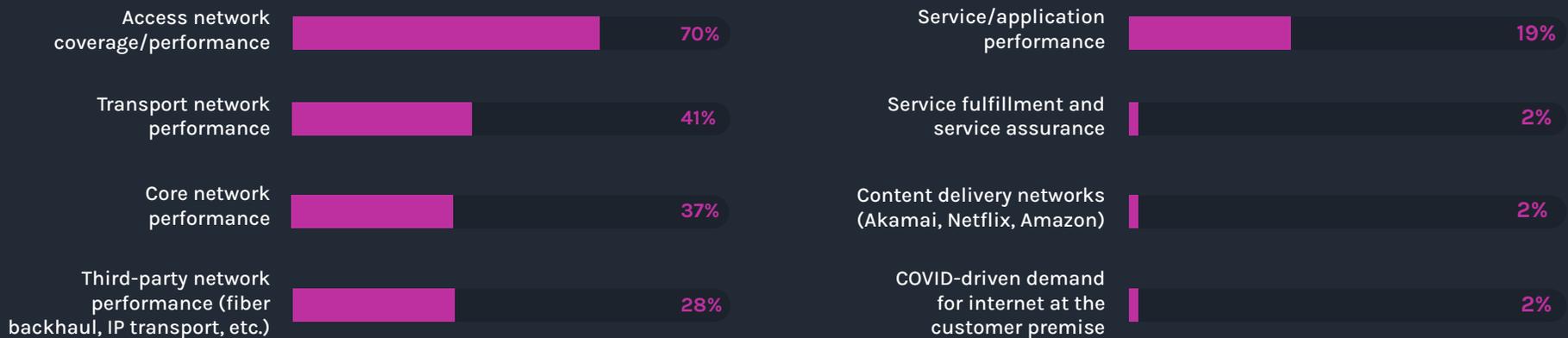


Figure 3. Factors impacting subscriber experience

How Do Test, Measurement & Assurance Impact Subscriber Experience?

The importance of test, measurement and assurance on networks also becomes clear when examining how COVID-19 impacted network operations.

Almost 80% of operators said they have temporarily reduced or eliminated in-person tech visits as a result of the pandemic, with 7% expecting this to be a permanent change.

The overwhelming majority of service providers say that COVID-19 has had no impact on:

- 78% Reducing test cases.
- 78% Relying on NEMs for quality assurance.
- 70% Reducing test cases to speed network deployment.

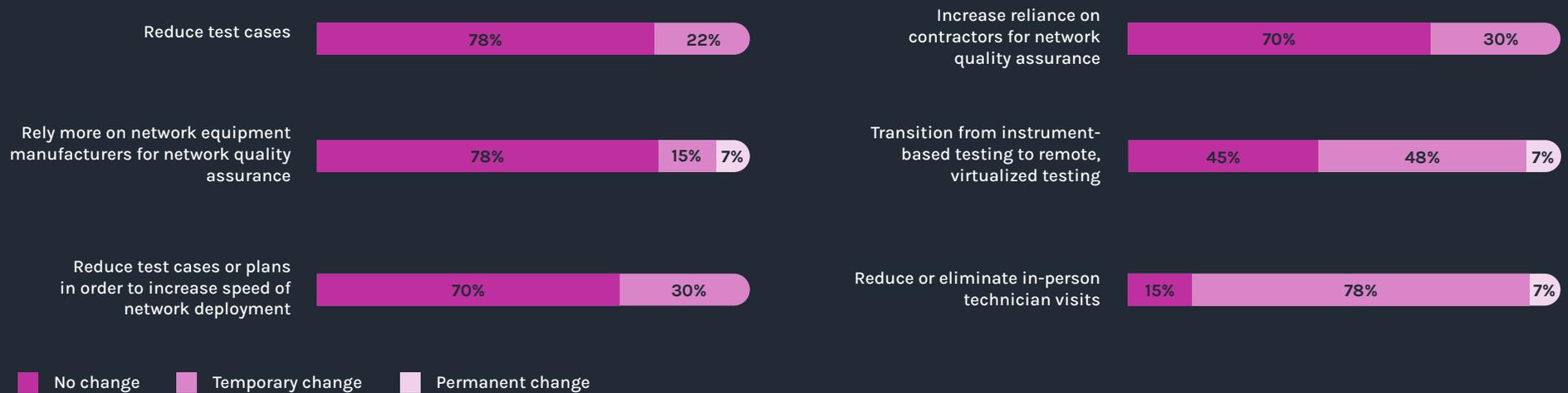


Figure 4. Impact of COVID-19 pandemic on test, measurement and assurance procedures

Do Network Test, Measurement & Assurance Really Matter?

In a word: Yes. In three words: a resounding Yes. Almost all service providers (93%) see a correlation between testing networks, improving customer service and reducing churn.

Likewise, almost 80% of service providers believe that testing on the front end of networks reduces the OpEx that's required to correct issues down the line. And more than 70% of respondents say testing reduces revenue loss to poor network quality.

Moreover, almost all service providers agree that test, measurement and assurance solutions from a specialized vendor are essential for strong network performance and customer satisfaction. Interestingly, an equal number of service providers say they don't achieve sufficient performance metrics from built-in test, monitoring and assurance features in network equipment.

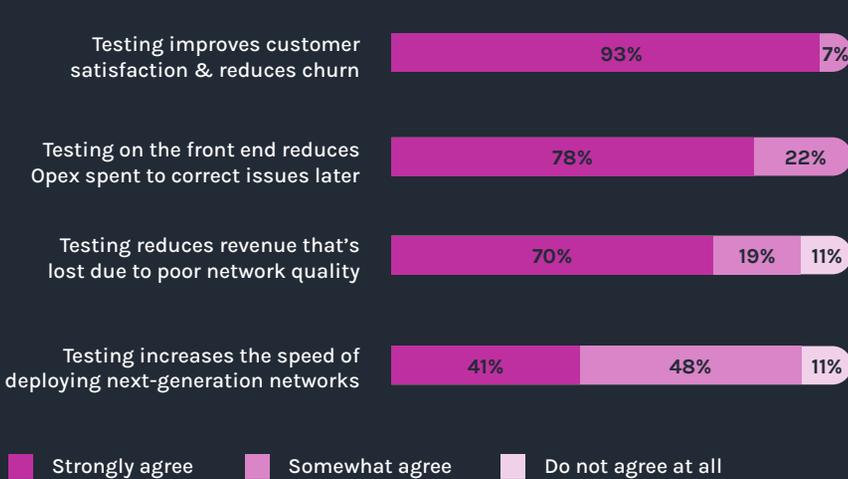


Figure 5. Attitudes towards test, measurement and assurance

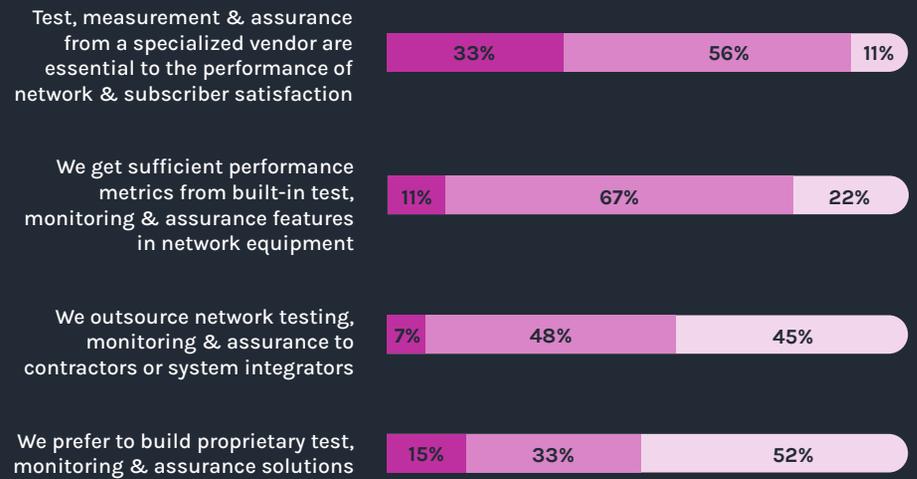


Figure 6. Sources of test, measurement and assurance solutions

Do Network Test, Measurement & Assurance Really Matter?

The importance of test, measurement and assurance also are evident when examining how service providers address ongoing support. About two-thirds of operators say they:

- 67%** Purchase service agreements to ensure priority support for field techs.
- 63%** Provide internal training and support on test gear.

Most service providers believe that testing on the front end reduces the costs required to correct network issues down the line

We purchase service agreements to ensure priority support for technicians in the field



We purchase training from test vendors to ensure that our technicians are fully prepared to use test gear effectively & efficiently



We provide internal training & support on test gear for our technicians



We purchase service agreements to ensure priority support for technicians in the lab



We expect that training & support will be provided as a free service from the vendor



Figure 7. Support for test, measurement and assurance

What Impact Do Technology Trends Have?

Today's networks are undergoing massive transformation driven in large part by technologies like artificial intelligence (AI), machine learning, virtualization and automation.

Service providers say these trends are strongly impacting their need to utilize third-party testing, monitoring and assurance solutions.

The three network trends that are having the strongest impact on the need for service

providers to utilize third-party testing, monitoring and assurance solutions are:

78% Virtualization.

70% Automation.

70% Network slicing.

More than half of operators also said that machine learning (56%) and open source (52%) are impacting their need for third-party test and measurement solutions.

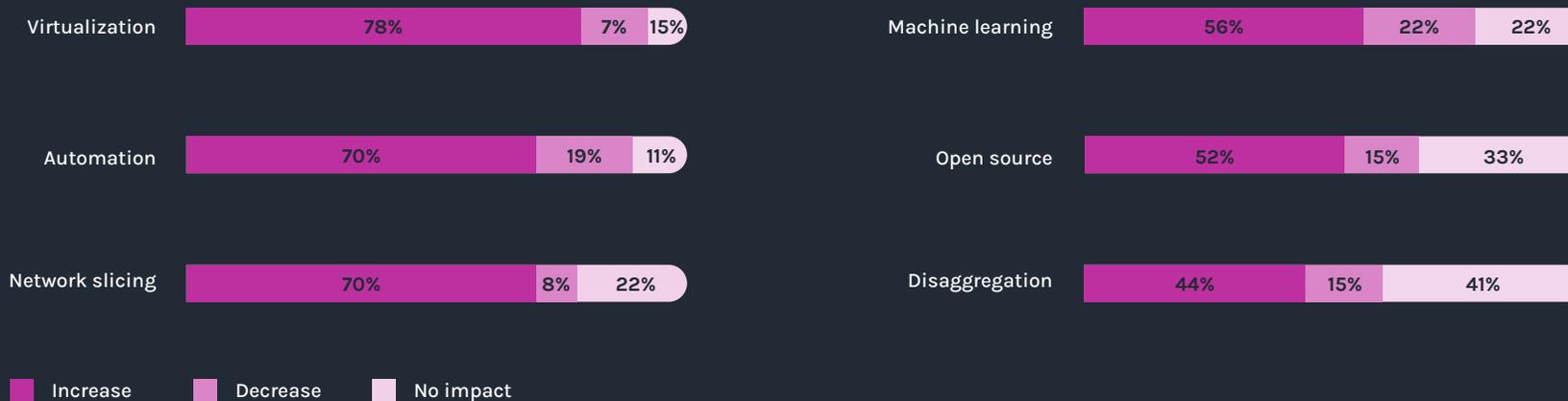


Figure 8. Technology trends driving need for test, measurement and assurance

What Impact Do Technology Trends Have?

Likewise, technology is impacting the phases of test, measurement and assurance. All service providers strongly agree (78%) or somewhat agree (22%) that artificial intelligence and automation in network monitoring and assurance solutions prevent problems and optimize networks. All service providers also strongly agree (44%) or somewhat agree (56%) that deployment

problems are minimized if lab simulations are done before networks are deployed in the field.

And the overwhelming majority of service providers (85%) agree that in-person tech visits remain an essential part of activating, maintaining and troubleshooting network service.

Service providers are turning to advanced technologies including automation, AI and virtualization to improve the customer experience while controlling costs

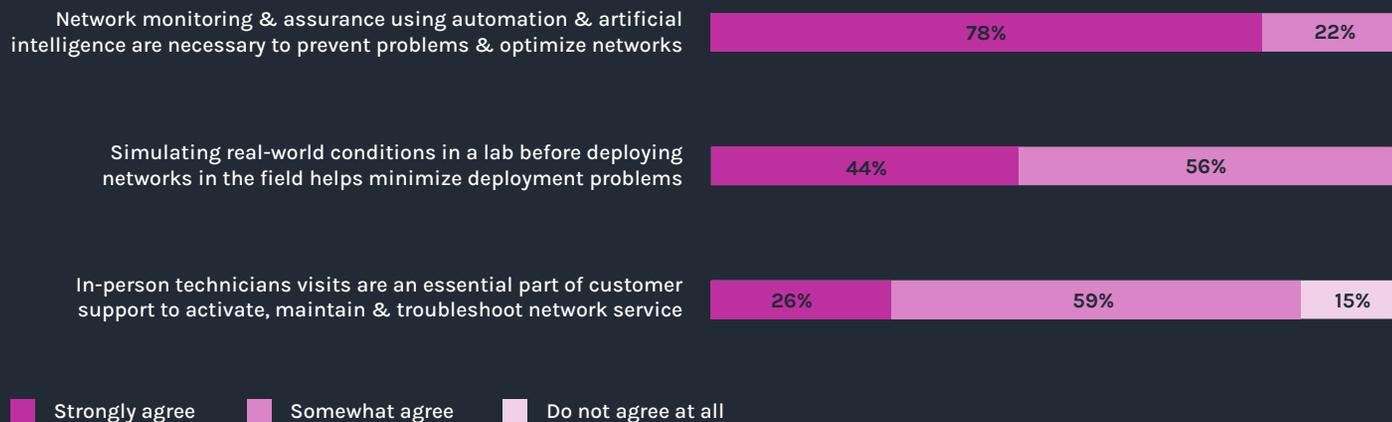


Figure 9. Phases of test, measurement and assurance

Delivering on the Promise

In spite of – and partially because of – a challenging year, service providers across the globe are resolutely looking ahead.

They are turning to advanced technologies including automation, AI and virtualization as ways to improve the customer experience while controlling costs. Far from just being the latest buzzwords and bandwagons, service providers are actively engaging with these technology trends.

Yet as wired and wireless networks alike continue to evolve and transform, they are becoming more complex as well. Positively, service providers are predominantly demonstrating a mature attitude to the necessities of test, measurement and

assurance to ensure performance of these next-generation networks. Alongside this, it is clear too that they are increasingly leaning into their relationships with third-party test and assurance vendors, relying on them to ensure that advanced technologies perform as required and deliver the hoped-for benefits.

While *business as usual* may take its time to return to the service provider world and beyond, there are absolutely reasons to be positive, as service providers advance new technologies to enable the speed, performance and scalability needed to meet ever-increasing demands for connectivity and improved user experience.

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