



Home Network Diagnostics

HOME NETWORK DIAGNOSTICS BENEFITS:

- Optimizes truck rolls via machine-learning powered intelligence
- Enables proactive customer care management
- Diagnoses home network issues (i.e., poor WiFi placement, WiFi congestion) accurately and rapidly
- Reduces call center resolution time and churn, improving OPEX and customer satisfaction
- Creates upsell opportunities for selling customers in-home network improvement products (e.g., better CPEs, WiFi range extenders, etc.) or network-based policies to manage in-home congestion
- Deploys without installation of any special hardware or software in the customer's home

Proactively diagnose in-home WiFi issues

MARKET OVERVIEW

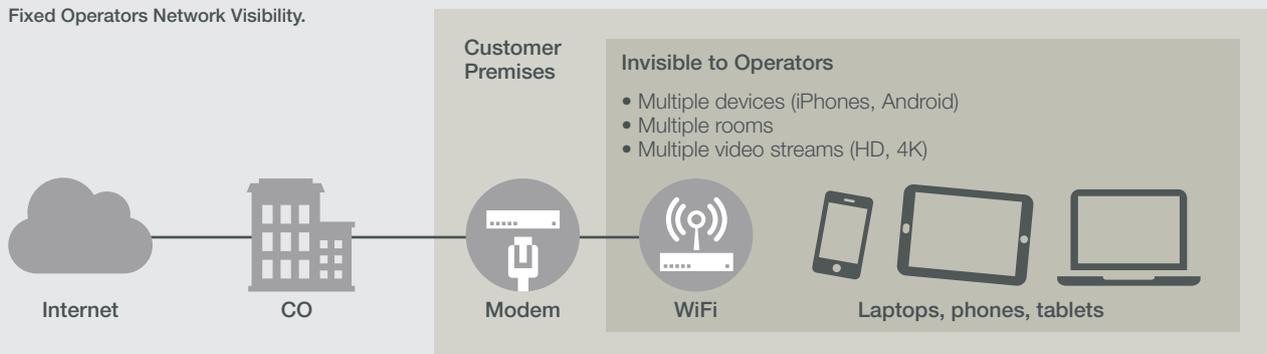
Most consumers believe network operators are responsible for the quality of their internet service across all of their devices – even if the device is on a home WiFi network. Since many home WiFi hotspots are bundled with the connectivity devices, it is very difficult for an operator to distinguish issues in the home versus issues in the network when a customer calls in to the customer care center.

High-bandwidth applications continue to dominate networks on both upstream and the downstream links, but regardless of the subsequent impact to the network, consumers still expect a high degree of network responsiveness to support their applications.

At the same time, consumers lack the ability to troubleshoot their own network issues as home networks have gotten more complex, with different spectrum bands and coverage available (e.g., 2.4GHz and 5GHz), multiple devices, multiple rooms, and multiple simultaneous screens. As a result of this complexity, and a perception that the operator is responsible, consumers are likely to call customer care and complain: “my Internet is slow”. Traditionally, fixed operators have had very good visibility into network performance to the CPE (Customer Premise Equipment), but very limited visibility into the home and potential issues (Figure 1).

Figure 1

Fixed Operators Network Visibility.





When a customer care agent answers a call from a customer complaining about “slow internet”, this often results in either a misdiagnosis (driving further customer frustration) or an inability to diagnose the issue remotely, directly resulting in costly “truck rolls” for onsite resolution.

The inability to remotely (reactively and proactively) diagnose internet issues, whether in the network or in the customer premise is costly to the operator in many ways:

1. Truck rolls: A very expensive resolution option for the operator, not only in terms of labor cost, vehicle fleet maintenance, but also in poor customer experience by delayed problem resolution.
2. Missed upsell opportunities: Poor WiFi placement in the home is a missed opportunity when engaging with a customer who has a WiFi strength issue.
3. Call center efficiency: Unnecessary support calls consuming call center resources

In the case of truck rolls, these can be avoided by guiding customers to move their WiFi access point or add WiFi extenders.

An even bigger challenge for network operators is many customers who have network quality issues don't even call to complain. It is estimated that only 1 in 27 customers call customer care when they have a complaint about internet quality. This group of customers who don't call to complain, commonly referred to as “silent churners”, have a high chance of cancelling their service and churning to a competitor without any warning signs. In order to reactively and proactively diagnose and troubleshoot issues, it is important for operators and their customer care department to have visibility into customer premise network performance.

SOLUTION OVERVIEW

Sandvine's Home Network Diagnostics allows fixed operators to troubleshoot on-premises issues via a unique network intelligence method.

Similar to how a doctor uses an EKG to interpret and diagnose various heart conditions based on unique patterns, Sandvine uses network performance characteristics, measured at the core of the network, to interpret and diagnose various conditions associated with poor WiFi performance (e.g., Poor WiFi placement, WiFi congestion, and access congestion). Each type of WiFi issue has a distinct “traffic signature”, which is used to indicate the root cause of the problem. These traffic signatures are tracked over days to indicate the persistency and therefore the likelihood customers will call in.

Put in the hands of customer care agents, these readily available root cause analysis results can be used to avoid unnecessary truck rolls, upsell WiFi range extenders, and shorten call times (reactive approach). Customer care departments can also use these diagnoses to proactively roll trucks or upsell WiFi range extenders when problems are found – avoiding customer care calls entirely (proactive approach). With both reactive and proactive approaches in the tool belts of customer care departments, customers are happier and as a result are less likely to churn.

This solution includes a pre-packaged set of diagnostic dashboards (Figure 2 and Figure 3) in Sandvine's ANI Portal, illustrating which customers are having issues and the severity of issues. These dashboards help customer care and the operations team quickly identify and resolve where the problem is for a specific customer, and drives a higher ROI on money spent on customer care resources.

Specifically, this solution delivers the following:

- Real-time visibility into the various issues being experienced by the customer with the Sandvine-developed diagnostic application
- Proactive detection, allowing customer care teams to take actions before a customer calls to complain



- Confident customer care management via customer issue history and root cause analysis
- Accurate diagnosis of:
 - Poor WiFi placement
 - Upstream and downstream WiFi congestion
 - Upstream and downstream access congestion
- Clear determination of whether it's an access network issue or home WiFi issue before rolling out field force resources.

Figure 2

Home Network Diagnostics Overview Dashboard

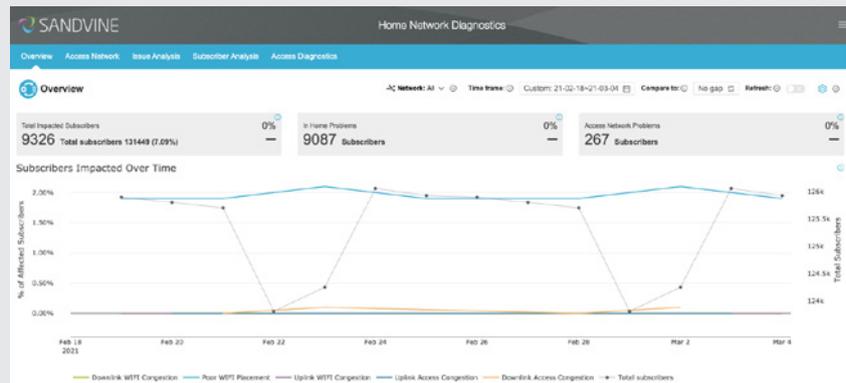
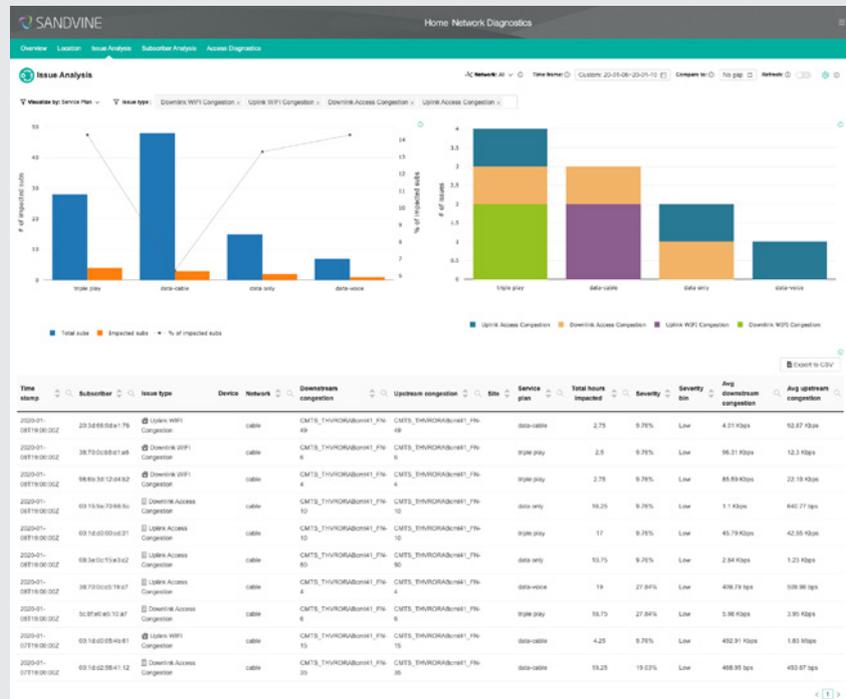


Figure 3

Home Network Diagnostics – Issue Analysis



By employing this proactive solution, operators can achieve faster call resolution times, improved customer satisfaction, and reduced operational expenses with unnecessary truck rolls. It allows operators to deliver proactive customer care and run more efficient, effective customer care centers.



ABOUT SANDVINE

Sandvine helps organizations run world-class networks with Active Network Intelligence, leveraging machine learning analytics and closed-loop automation to identify and adapt to network behavior in real time. With Sandvine, organizations have the power of a highly automated platform from a single vendor that delivers a deep understanding of their network data to drive faster, better decisions. For more information, visit sandvine.com or follow Sandvine on Twitter at [@Sandvine](https://twitter.com/Sandvine).



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