



Performance & Service

The StableNet® Wi-Fi Portal: Take the guessing out of Wi-Fi performance issues with distributed monitoring

Stay on top of your wireless connectivity, ensure a reliable infrastructure, and pave the way for exponential IoT growth with network performance assurance and user experience measurements in a single solution

Background & Motivation

At the beginning of 2020, a long-time and trusted Infosim® partner was experiencing a common issue – unstable Wi-Fi connectivity. A global retail chain based out of Germany, the company's Wi-Fi infrastructure and IoT connectivity was growing rapidly. From office and administration to logistics automation and network-connected retail branches, business critical services were being threatened. In order to address the problem, they needed to first know what exactly was causing it. They were confronted with two alternatives:

- use the solution from the dedicated hardware vendor, which just covers each specific vendor's devices. The information the vendor tool provides are limited and can't be correlated with other general measurements of the network and application environment. For network operators, this would also entail mastering a separate tool and a separate interface (with all the additional maintenance effort) just to be able to see one part of the problem.
- see if they could implement a native Wi-Fi measurement solution that would be fully integrated with their existing network management platform StableNet® and covers multiple vendors.

Wireless connectivity and performance are the result of a chain of various hardware components (e.g. access points and wireless controllers) as well as services (e.g. DHCP/DNS servers). While various vendors offer proprietary solutions to troubleshoot your Wi-Fi connectivity, these are cost-restrictive, limited in what they see, and lack integration (API support) for a vendor-independent, unified network management platform. That's why, when our partner came with a problem, we came up with a solution.

Fig. 1: The StableNet® Wi-Fi Portal provides network performance assurance & Quality of Experience (QoE) measurements in a single solution.

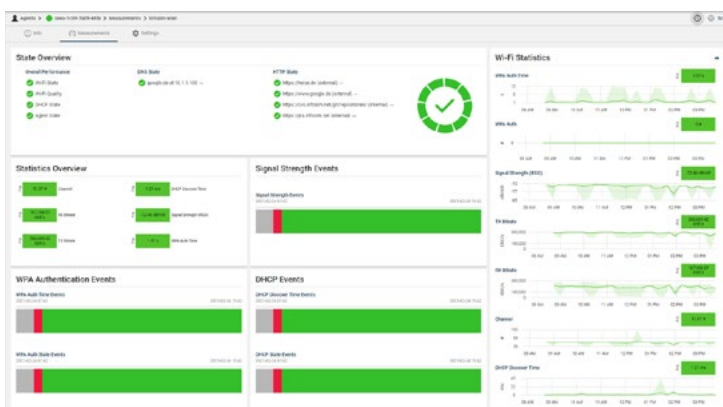


Fig. 2: What do the Small Form Factor StableNet® Embedded Agents look like?

CPU: Intel J4005
Memory: 4GB SO-DDR4
Storage: 120GB SSD
USB: 4x 3.0 USB
Networking: 1/100/1000 Mbps LAN, Wi-Fi, 5.0, LTE Module, Bluetooth



2x HDMI 2.0a, 2x Antenna connections (4x with LTE Module), 1x mini-Toslink (digital audio)

Dimensions: 15 ½cm x 15 ½cm x 7 ½cm (LxHxW)

StableNet® Solution

With the StableNet® Wi-Fi Portal, you can remotely troubleshoot any number of wireless network connectivity issues. The solution is based off of a strategically planned distribution of StableNet® Embedded Agents (SNEAs; see Fig. 2), each capable of capturing performance data from a user's perspective in connecting to one or several local Wi-Fi networks. Disguised as a BYOD, they are able to assess the complete service chain and report back the exact service that doesn't work.

With a simple onboarding process, each SNEA can be setup with your respective network information. Because they are outfitted with a cellular (LTE/UMTS) connection, the SNEAs are not only able to connect to your installation from the outset, but this also provides a critical failover in case your wireless network goes down.

Once the SNEAs are in place and configured, the solution is ready to go. They communicate at regular, predetermined intervals and send that data wirelessly (via Wi-Fi or, if necessary, LTE/UMTS) to the Customer Cloud. Here, both the StableNet® server and database are ready to gather and store that information for analysis and insight. And with the available logfiles, you have access to historical data to help with troubleshooting as well as a formidable Wi-Fi debugging capability.

With a long list of potential measurements (see Fig. 3), the ability to provide information on any number of affected services, error and alarm integration, and multiple options for reporting, the StableNet® Wi-Fi Portal is an ideal solution for network performance assurance and end-user Quality of Experience (QoE).

Benefits & Results

At Infosim®, when we say that we see our customers as long-term partners we mean it. We understand that, once you have found a unified solution for automated network and service management, you don't want to go back to a piecemeal solution, cobbled together by multiple vendors and user interfaces. We seek out and listen to feedback and ideas from our partners and look for a way to make it work.

With the StableNet® Wi-Fi Portal, we have developed a solution to help you gain invaluable insight into your client-side Wi-Fi performance. With multiple measurements, full StableNet® integration, and a reliable cloud-based architecture able to use both wireless and LTE/UMTS options for communication, the issues with your Wi-Fi network are immediately detected so targeted countermeasures can be implemented as quickly as possible.

Key Benefits

- Full integration with your existing StableNet® installation
- Complete measurement of entire service chain for targeted troubleshooting
- Connected via LTE/UMTS and Wi-Fi for secure failsafe solution
- Fully configurable with stored historical data for debugging
- Simple onboarding procedure for immediate impact

Fig. 3: The StableNet® Wi-Fi Portal is able to capture a wide variety of measurement data:

Wi-Fi Overview

- Wi-Fi State (e.g. WPA auth, WPA association, etc.)
- Wi-Fi Quality (e.g. Signal Strength (RSSI), Bitrates, etc.)
- DHCP State (e.g. DHCP State / Discover Time, etc.)
- Agent State (e.g. Default Gateway Reachability, Agent State, etc.)

Additional Measurements (Service)

- External HTTP(s) Service KPIs (e.g. HTTP Status, "time to first byte", etc.)
- Internal HTTP(s) Services KPIs (e.g. HTTP Status, "time to first byte", etc.)
- DNS State (e.g. DNS Lookup Time, etc.)

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