Data Sheet

5x9 Lightweight Monitoring System

Monitor everything from the ground to the cloud

Complete performance visibility and control at all times

Key Features

• Get full network and application visibility. You name it - our list of already available software measurement modules covers it all.

• Completely platform and hardware agnostic. x86, ARM, VM, Docker, or Android – it doesn't matter for our remote Probes.

• Plant any number of Probes you need. We provide system support to thousands of distributed Probes, without any additional operational or financial costs.

• The system gets smarter the more it works for you. 5x9 Lightweight sends alerts via fixed thresholds or patterns taught through Machine Learning

• Configuration shouldn't be time-consuming. That's why 5x9 Lightweight relies on GUI and API configuration.

• One point of control and visualization. 5x9 Lightweight's system configuration and management are centralized.

• We're your partners, in the real sense of the word. Our license policy is fair and simple – forget about any small print or hidden fees.

• 5x9 Lightweight is constantly evolving and growing. We make sure you keep up. All new software measurement modules and system features we come up with are included in the SLA

• Gain remote troubleshooting option. We provide remote capture and test execution to get in-depth diagnostics.

• Worried about integration? No problem. Lightweight has simple integration with 3rd party analytics systems.

• Don't worry about where the web takes you. Our security design assures safe exposure to the public Internet – no matter what shady sites your customer stumbles upon.

What makes 5x9 Lightweight stand out?

Full network and services visibility. High scalability. Maximum flexibility. 5x9 Lightweight Monitoring System is designed to ensure all of these priorities for you.

Distribute thousands of hardware-agnostic Probes through your network and to your applications, then configure and manage them via IP protocol.

5x9 Lightweight gives you centralized control over all Probes. Manage software measurement modules and configurations from one point. Have your data collected and analyzed automatically through clear graphs.

With 5x9 Lightweight, get full visibility and control over your network and application performance.

Product Overview

Seasoned with relevant experience

We have a long history of working in telcos. We know exactly where efficiency oozes out, and complexity creeps into their workflows.

So we poured a century of in-house IP and telecommunication experience into one goal – to build a system that will ensure full network and application visibility.

The end result was 5x9 Lightweight Monitoring System.

Fixed or mobile, it doesn't matter - we understand the networks you use. We have experience with all the supporting platforms that enable your network to operate - Radius, Diameter, DHCP, DNS. We're familiar with all the applications you run on top to provide services to your internal and external customers - VoIP, IPTV, HTTP.

And the issues you have? We've already been there, many times before.

Based on all this experience, we can monitor the availability and measure the performance of any network, platform, or application you have.

Get real value for money

All through development, we had an unwavering focus on end-user value, enhanced with simplicity and flexibility.

If that sounds like an empty promise, just check our Licensing policy and you'll see. 5x9 Lightweight is a platform with exceptional value, especially since a valid SLA gets you subscribed to any new software modules and features.

Effortless scalability

Does managing a whole web of Probes sound demanding? It isn't. Our system easily scales to thousands of distributed Probes, configured and managed from one point.

Provisioning is easy thanks to autoconfiguration. All activities related to Probes, like pushing measurement software and configuration, are centrally performed with a single GUI click or API call.

Clear performance data

Remote Probes automatically upload raw performance data to the central location for analysis, visualization, and alerting.

The Node Manager collects their data and visualizes it through clear graphs. You can clearly see if there was any package loss, delays, or anything that affects your network negatively.

Performance data can also be easily exported to 3rd party analytics systems using an embedded message broker.

Get to the root of the problem in just a few clicks

Here's an example from our experience.

When our client usually received a complaint that their visitors can't connect to their wifi, that meant a deep dig through layers and layers of their network. The problem just wasn't visible until extensive tests were made.

And to get information, you usually have to walk your customers through what they have or haven't done – you know, the good, old „have you tried turning it off and on again?"

On the other hand, the Node Manager pinpoints the exact problem and visualizes the data clearly on the dashboard. Having this kind of overview helps you know immediately if there's an issue, and what the issue is. You get an alert, consult the collected and visualized data, and deal with the problem head-on.

Architecture and Key Components

5x9 Lightweight consists of three major components:

- **Node Manager;**
- **Probe Software and Measurement Modules**;
- **Software Framework** for communication between them.
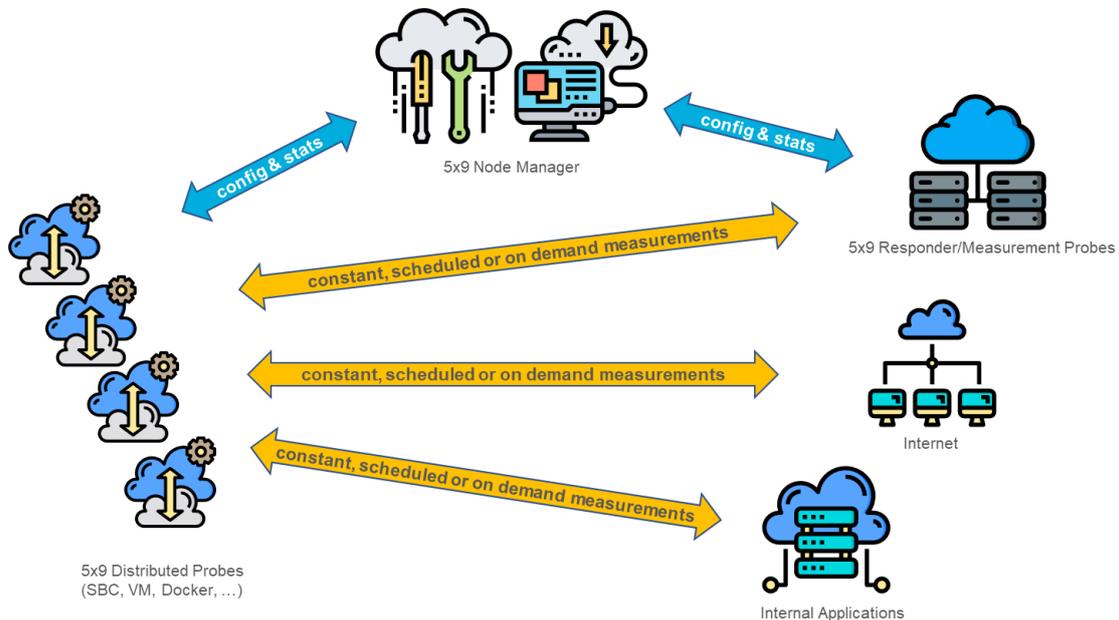
Node Manager

The Node Manager is the brain behind it all. It kicks the Probes into action, assigns them their IP address, manages their modules and configurations. In short, it hands out orders what to measure, how to measure it, and when to report back.

The Node Manager collects all the data it gets from the Probes and visualizes it through clear, readable graphs. The graphs are visualized through an open-source tool, which allows you to develop any kind of custom report you need to suit your workflow.

Deployed on a central location redundantly, the Node Manager ensures continuous uptime no matter what.

Probe Software and Measurement Modules

You can have any number of probes in the system – one, or a thousand and one. The Probes report collected data back to the Node Manager, as their underlying software enables zero-touch communication with it.

The communication between probes can be:

- **Probe to probe** – Assess the transport between two points in your network, i.e. time mapping, getting a better look at delays and jitters.
- **Probe to Internet** – Great for DNS and speed tests.
- **Probe to internal platform** – tests communication with your internal company platform or ISP platforms.

We've developed over 20 different measurement modules, and we're constantly upgrading them.

Each module is responsible for a specific measurement or set of measurements, making it easy to choose a good fit for your system.

All software measurement modules fetched from the Node Manager are digitally signed and hashed. Before software installation, the Probe will check if any content has been altered during transmission to ensure maximum security.

The interval of the measurement can be:

- **Constant**. Once you start, it doesn't stop until you shut it off.
- **Scheduled**. Measure each day, each week, each Monday – choose whatever interval that suits you.
- **On-demand**. Start it up only when necessary.

Software Framework

The third component is the Software framework, a hidden system component that glues the Node Manager to distributed Probes.

There's a lot of communication going on between the Node Manager and its remote Probes: measurement software distribution, configuration, and performance data delivery. To ensure ironclad security, this communication uses the Software Framework. This hidden component uses TLS for communication between various system components.

The Software Framework enables the configuration and management of remote Probes, the distribution of measurement modules and corresponding configurations, and performance data collection and processing.

It's run on both previously mentioned components, the Node Manager and the Probes

Centralize your control with Node Manager

The Node Manager is the central system component designed for automated Probe configuration and management.

The Node Manager's main tasks are to:

- Manage registry and configuration of all network Probes
- Assign measurement modules and module configuration to each network Probe
- Collect measurement data, visualize performance, and create alerts based on predefined thresholds or machine learning

During initial system setup, you define the thresholds. Once these thresholds are crossed, the Node Manager sends you an alert.

5x9 Lightweight also relies on machine learning. It studies what goes on in your network and learns what passes as normal behavior in your system. This allows the Node Manager to start setting thresholds when it recognizes that normal behavior has been disrupted.

Easy-to-use and efficient Probe Software and Measurement Modules

Plant the probes wherever you want, any number you want. They're also fully platform-agnostic and work just the same on any regular server or virtual drive.

The Probe Software is a platform-specific software image or package for Linux including zero-day configuration. It's required to contact Node Manager for automated configuration and management. It runs measurement software modules and reports raw performance data to Node Manager.

Probe software images are currently developed for SBC (RPi, NanoPi, etc.), Docker, VM, and Bare Metal deployments.

Measurement modules are both standard and custom-developed Probe modules responsible for a specific measurement or set of measurements. Currently, there are 5 types and over 20 different measurement software modules that cover both fixed and mobile networks services and applications.

Read more about our Software Measurement Modules in the Licensing system and Technical specifications.

System licensing

Who doesn't hate surprise charges? That's why we keep everything clear from the start.

5x9 Networks has an extremely simplified and fair license policy – only the number of installed Probes is licensed, and not the Node Manager and Software Framework.

We charge a one-time installation fee for the initial system setup, a one-time fee for the probes, the maintenance, and that's it. There's no more to it.

Choose from four 5x9 Lightweight Probe licenses:

- **Micro Probe** – 1 installed measurement module
- **Small Probe** – up to 5 installed measurement modules
- **Medium Probe** – up to 10 installed measurement modules
- **Large Probe** – 10+ installed measurement modules

What about the Measurement Modules?

Our Measurement Modules are also not licensed.

What's the catch? Well, there isn't any.

5x9 strongly believes that measurement modules are the very core of 5x9 Lightweight and a true value of the system.

So, a customer with a valid SLA or warranty is subscribed to all measurement modules available now and forever - in other words, 5x9 will deliver all future developed measurement modules to all existing 5x9 system installations.

But what if no Measurement Module fits me?

No worries - we also offer fully customized measurement software modules.

If none of our existing modules fits your needs, walk us through your workflow and we'll customize a module specifically for your use case.

And if we see the module has market potential, we'll develop it for you with no charge for change requests. Sounds good?

Technical specifications

Efficient network and application performance visibility, that's our core value. Ensure the best end-user experience through clear diagnostics tailored to your needs. Choose your Software Measurement Module from the list below, or ask us for a completely new, custom-made one.

If you have any questions regarding our specs or some future feature, send us a line at **info@5x9networks.com**.

System Measurement Software Modules

Network
- TWAMP (IETF)
- Network performance (delay, loss, OoO and jitter)
- Network BW (TCP and UDP throughput)
- Latency (ICMP latency)
- SpeedTest
- E2E QoS

Applications
- Radius
- Diameter
- DHCP
- DNS
- Database
- HTTP(S)
- YouTube P3
- File Download P3
- FTP
- TFTP
- NTP
- IPTV (multicast and unicast)
- VoIP (SIP signaling and media)
- POS (SPDH Point of Sale terminal emulation)

Mobile
- 2/3G CS Voice (CSSR, CST, MOS)
- VoLTE (CSSR, CST, MOS)
- SMSo2/3G
- SMSoIP and SMSoLTE (scheduled for H2/2022)
- NB-IoT
- LBS

Security & Troubleshooting
- Security Scan
- Traffic Capture

Framework
- PPPoE
- WiFi
- Residential Customer
- Mobile
- Android (scheduled for H2/2022)

Supported Probe Platforms
- x86/x86_64
- ARM
- VM
- Docker

RPi Platform Verified Mobile HAT HW
- NB-IoT Data and SMS (SIM7020)
- 2/3/4G Data, SMS, CS Voice, VoLTE and GPS (SIM7600)
- 3/4/5G Data, SMS, CS Voice, VoLTE and GPS (SIM8200)

SmartSFP Verified HW
- PlumSpace Smart SFP IP SLA Probe - TWAMP and Capture

Simplify your maintenance, diagnostics, and life with 5x9 Lightweight Monitoring System. **Request a demo** and see how.