NETXMS

Industrial and IoT device monitoring

A powerful specialised device and network management system that seamlessly integrates with your existing infrastructure

With NetXMS you will be able to

- Monitor and manage production lines, while also monitoring servers, sensors and any other devices in your network with the same NetXMS system.

- Control quality assurance of your machines and devices remotely, from your central office. The system allows users to carry out remote monitoring of machines, troubleshooting, as well as managing the total cost of ownership.

- Run complete OT network discovery, including not only network communication equipment but also sensors and controllers usually missed by tools based only on SNMP.

- Collect all essential information about industrial machines, such as the vendor and model, as well as performance data about each unit.

- Predict potential upcoming failures in production lines and react preventatively.

Data protocols for your industrial, IoT, IIoT and OT devices

In addition to SNMP protocol, which is a standard for communication networks, NetXMS network discovery functionality uses data protocols for messaging and data exchange between industrial, IoT and industrial IoT (IIoT) devices, such as embedded devices, sensors and industrial PLCs, among others.

- CIP, EtherNet/IP

- MODBUS-TCP

- OPC UA

- MQTT
  the most common protocol for the IoT, as well as all of its basic versions, including its latest: MQTT 5

NetXMS is an extremely modular and flexible open-source system, allowing for any specific adjustment in industrial protocol use. Add the protocols you need with the help of our development team or a developer of your choice.

"Coming from the IT world there have always been many tools to support networks and their devices. After creating a service organization to help in manufacturing (OT — Operational Technology) there clearly was not the same level of tools to help. Finding NetXMS changed that, as its flexible framework allows building a network monitoring platform that is OT-friendly.

It provides the same essential capabilities of many network monitoring tools but provides the flexibility to expand the system in many ways. With full scripting support and a backend database, all the information it collects is available for reporting, graphing and analysis.

Working with the highly skilled development team, additional features were added to extend its ability to pull even more data from OT devices. The ability to interrogate the device directly allowed a deeper analysis of the entire environment, both OT and IT. This allowed quickly pinpointing issues with a machine beyond just the network and correcting what is causing downtime.

In an OT environment lost production can cost $10,000 per minute. Using NetXMS to identify issues has saved some customers millions of dollars over the past couple of years. It is an essential tool that is used in every environment to solve the majority of OT issues. With the rapid development and responsiveness of the team, NetXMS will continue to be used and expanded in our organization."

Mark Martin
systems engineer at McNaughton-McKay, www.mc-mc.com

The setup for distance monitoring of a production line or a machine

1. The NetXMS agent is installed on a proxy — the simplest platform (in case of industrial monitoring, it may be Raspberry Pi) and an operating system (NetXMS works with nearly all OSs) on each site

2. Each such platform is connected to a WIFI network or GSM modem with a SIM card

3. Each proxy agent is communicating with a machine or a PLC and then sends data to the NetXMS server via the encrypted channel

4. The NetXMS server where the encrypted data is sent is at your company's location. If needed, the NetXMS server can also be located on the premises where the machine is physically located, thus also giving local engineers an opportunity to do monitoring of the OT network themselves (it also can be configured differently, so that they are shown a different monitoring angle). Additionally, the end client can monitor their other equipment with the same NetXMS system.

The powerful NetXMS core

NetXMS — an enterprise-grade multi-platform network management and monitoring system — is the core of our ATM network monitoring solution.

It provides comprehensive event management, performance monitoring, alerting, reporting and graphing for all layers of IT infrastructure, from network devices to business applications.
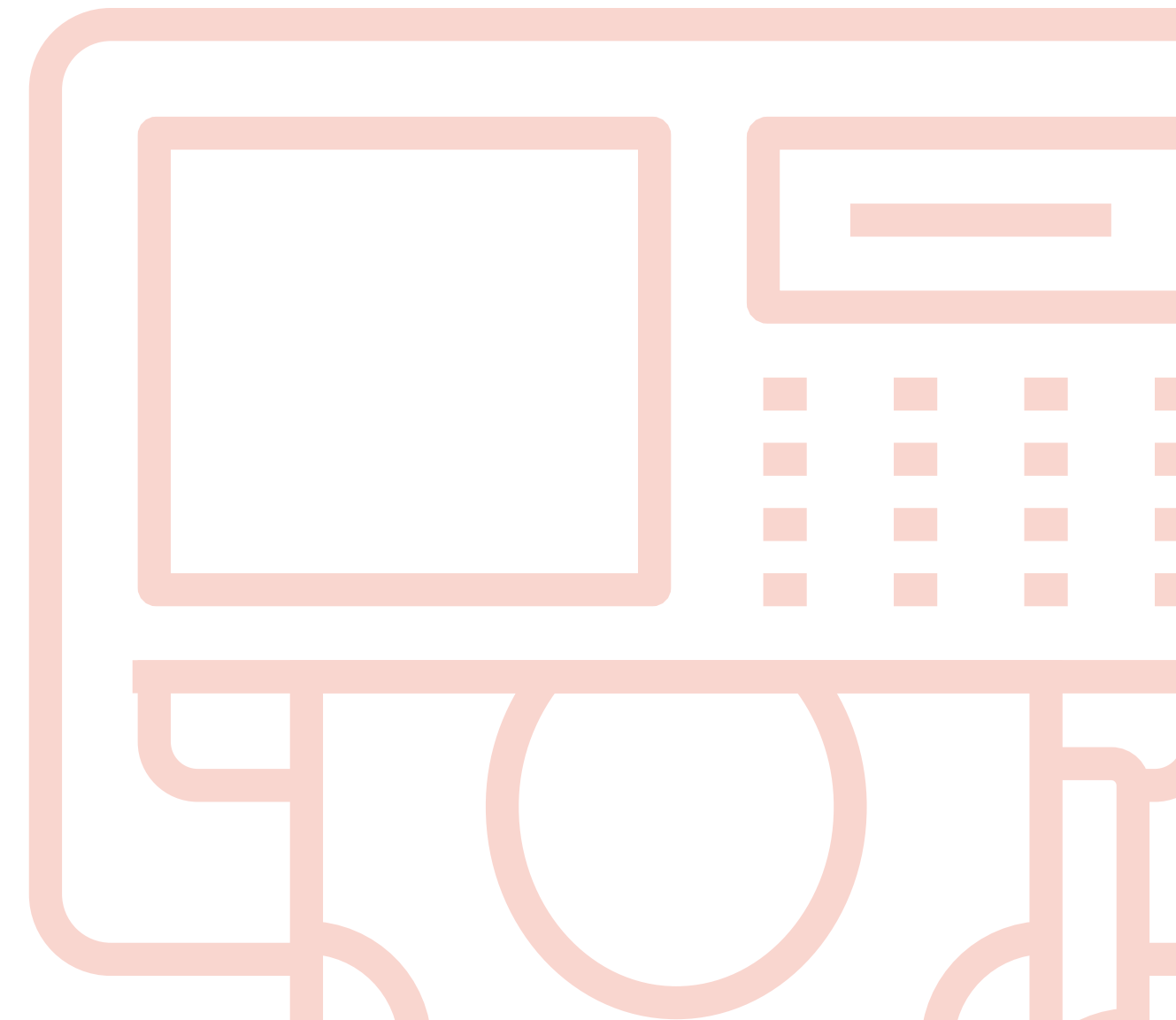
The advantages of open architecture

**The key to NetXMS's successful integration and effectiveness is its open architecture.**

- Each component of the system – whether server, agent or management console – can be expanded by plugins to add additional functionality or change the behaviour of existing components.

- The NetXMS server offers a rich API that can be used for various types of integrations with other systems.

- A ready-to-use API library is provided for the Java programming language, as well as an external scripting tool based on the Python programming language.

The system can be expanded by a customer, by Raden Solutions or by any third-party developer — neither limits nor additional licensing are required for API usage. Raden Solutions provides comprehensive support and provides professional services in regard to its monitoring products.

NetXMS architecture overview

Benefit from the system's three-tier architecture:

1. The information is collected by monitoring proxy agents communicating with the PLC devices or sensors

2. Then it is securely delivered to the NetXMS monitoring server for processing and storage

3. A network administrator can configure the system and access collected data using a portable Java-based management Console, web interface or mobile management console
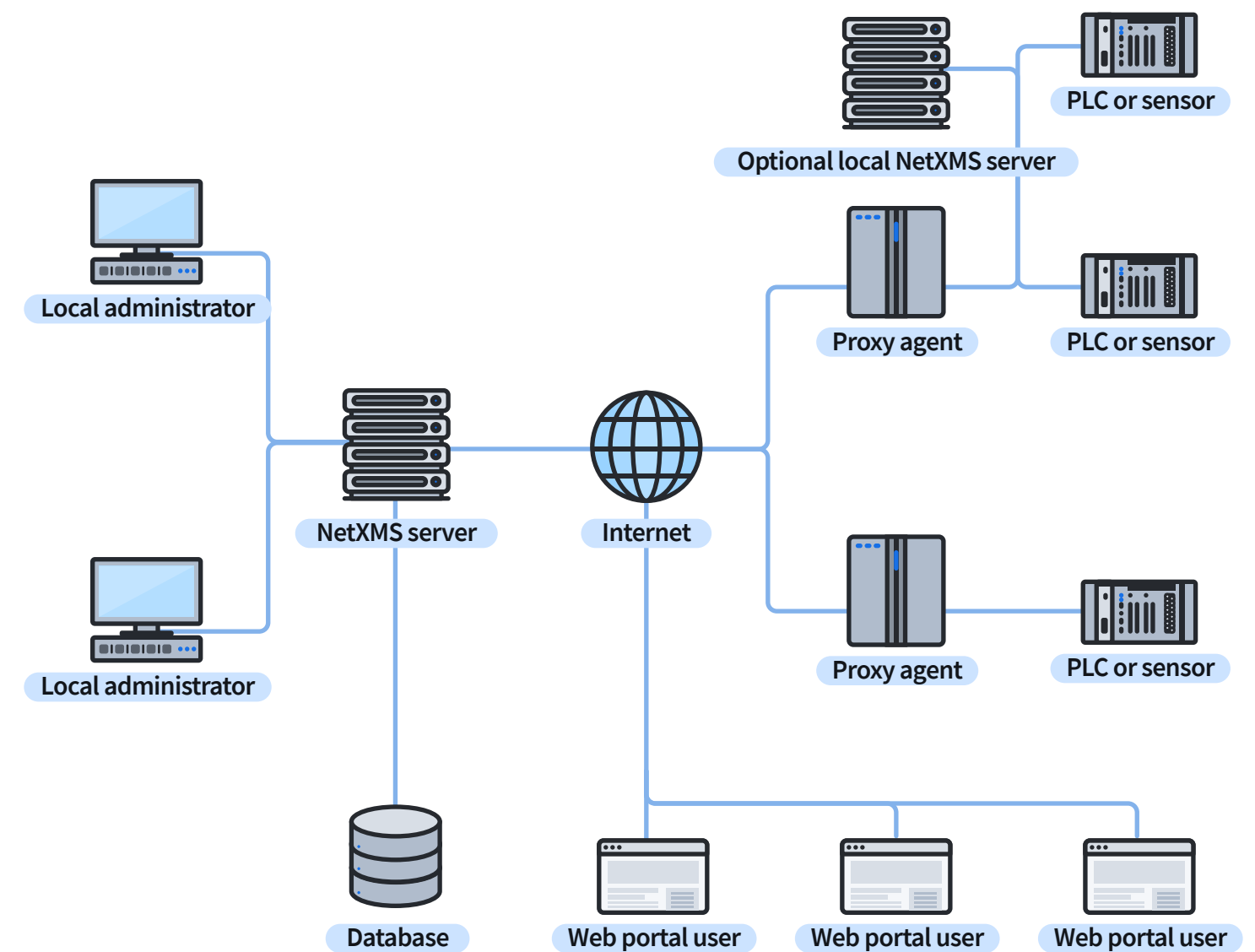

All collected data and system configurations are stored in the SQL database. You can choose Oracle, Microsoft SQL Server, PostgreSQL, MySQL or SQLite as your database engine.

A database server can be installed on the same physical machine as the NetXMS server or be installed on a separate server.

Feature highlights

- Unified platform for management and monitoring of the entire IT infrastructure

- Designed for maximum performance and scalability

- Distributed network monitoring

- Flexible and easy-to-use event processing

- Native support for many popular platforms and operating systems

- Easy and simple integration with related products

- Quick deployment with minimal configuration effort needed

- Business impact analysis tools

- Automated network discovery
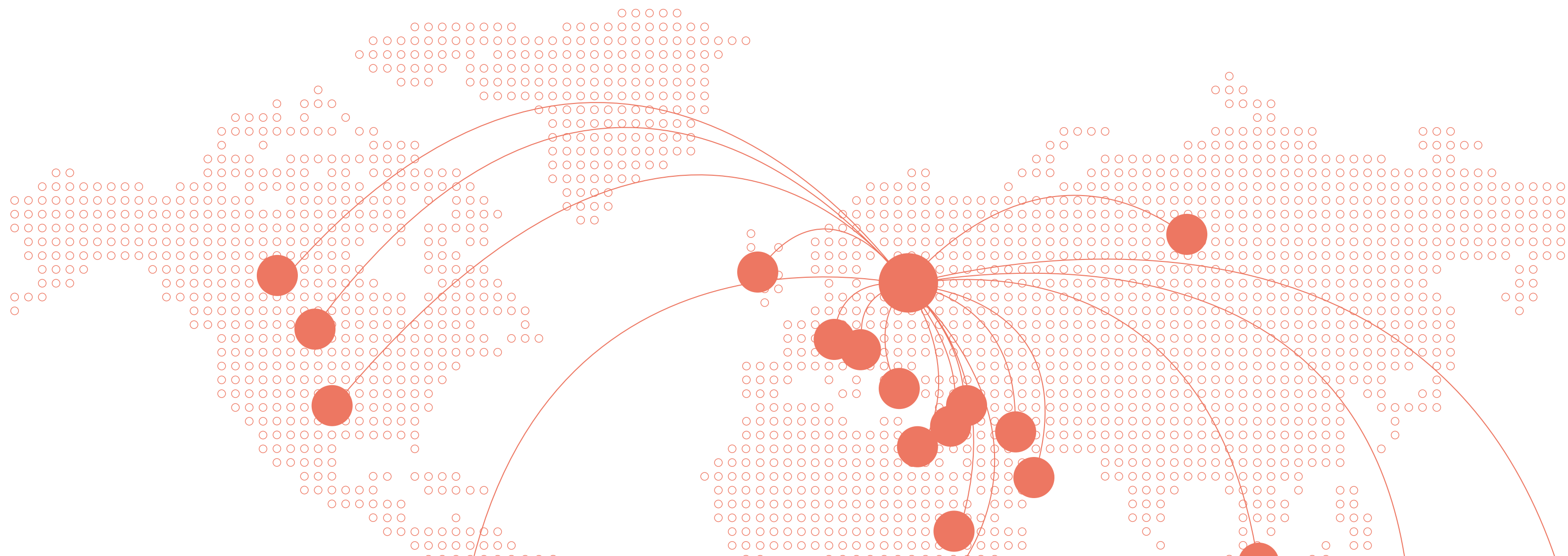
Perfect for industrial consultants

We implement any specific adjustment in industrial protocol use.

The wide range of customisation options and range of functionality make NetXMS a perfect tool for industrial consultants, as it allows them to make sharp evidence-based recommendations that really help boost production capacity and save costs for factory owners.

" I am proactively monitoring my clients' networks, and am now able to give them alerts and dashboards to see their own stats. It has increased my productivity immensely. I now cannot imagine not having it. "

Andrew M, G2 review

The NetXMS can be delivered as a white-label solution, so organisations can brand it as their own and sell it on to their clients

# Internet of Things device monitoring

With NetXMS you can efficiently manage networks of MQTT-supported devices.

- adjust the controls however you like

- pre-set your desirable readings (for example, for temperature or lights)

- control the devices during the set time periods

- set zones with different controls and triggers

The system will inform you when one of the sensors registers readings outside the set scope.

Environmental sensors' monitoring
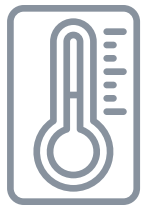
Control temperature

Control temperature sensors inside a building, be it a greenhouse or office complex, or just one floor in a building. You can adjust the controls however you like — to continue with the sensor example, you can pre-set your desirable temperature readings, and the system will inform you when one of the sensors registers that the air in the room has got too hot or too cold.
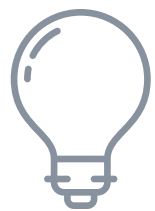
Control lights

Use NetXMS to adjust lights for maximum convenience and energy efficiency — like pre-setting the lights to dim or brighten at different times on weekdays and weekends.

Control air, humidity and soil quality

NetXMS system allows you to perform extensive environmental monitoring based on readings gathered from sensors on all kinds of MQTT-supported devices. Whether it is a compact network of sensors or an extensive series of networks, you can read, store and analyse data for air, water and soil quality.
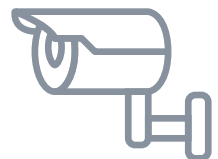
Control smart devices

Monitor and manage your smart devices — cameras, alarms, maintenance equipment and many, many more. Through Zigbee to MQTT bridge, the monitoring system can also gather data from Zigbee devices.

Remote access and device management capabilities

- Remote command execution

- Device startup and shutdown

- Device reboot

Remote management functionality greatly reduces the need for onsite visits. Perform bulk actions on your network if the devices allow for this kind of remote management.

The remote command execution can be invoked either manually by an operator or automatically at predefined times. It is also possible to set up the command execution as triggers for specific system events.

NetXMS reporting engine

With the NetXMS flexible reporting engine based on JasperReports Library we can configure any type of report for any type of setup.

JasperReports Library is a comprehensive report development environment for building sophisticated print or web reporting, including:

- flexible pixel-perfect report layout

- support for a wide range of output channels (pdf, html, xls, csv, rtf, txt and xml)

- comprehensive charting, drill-down analysis and internationalisation

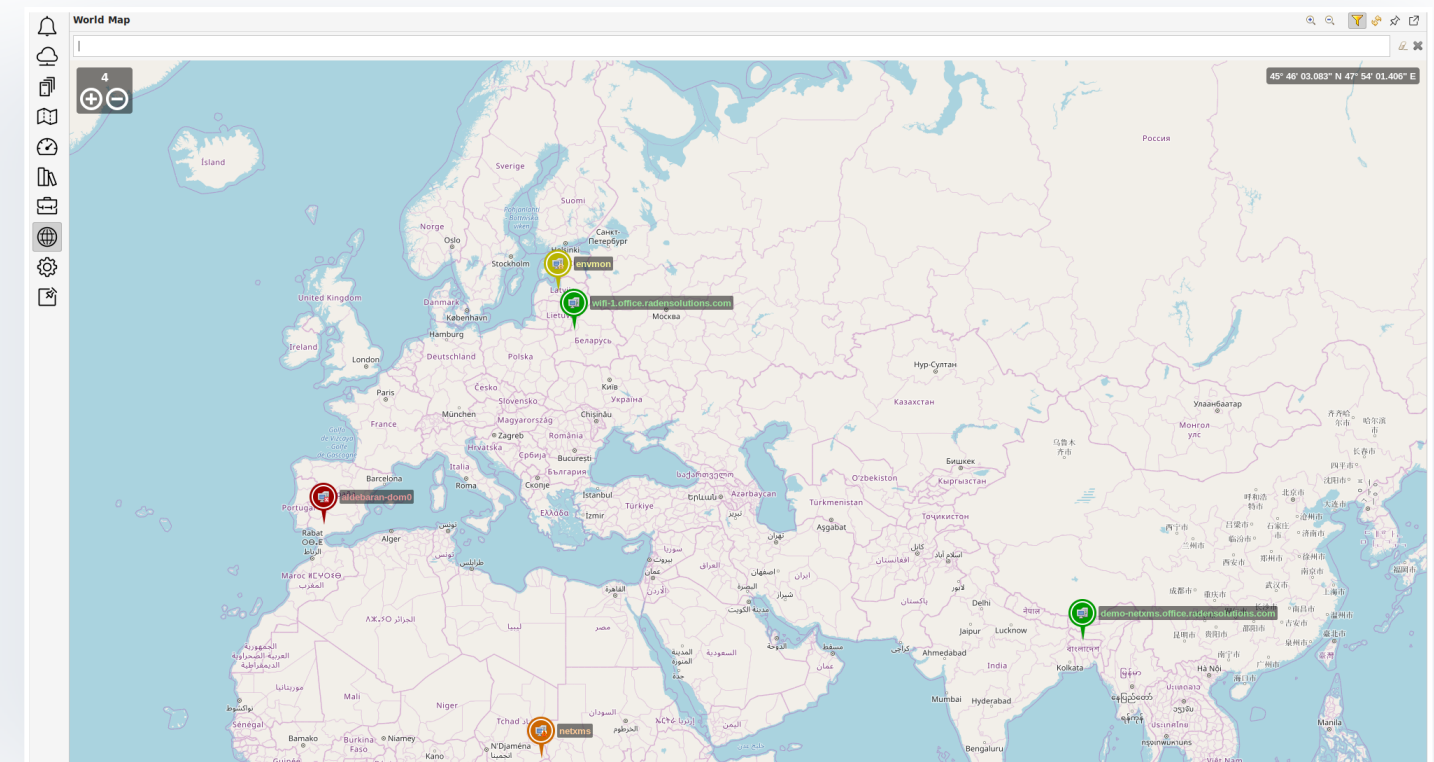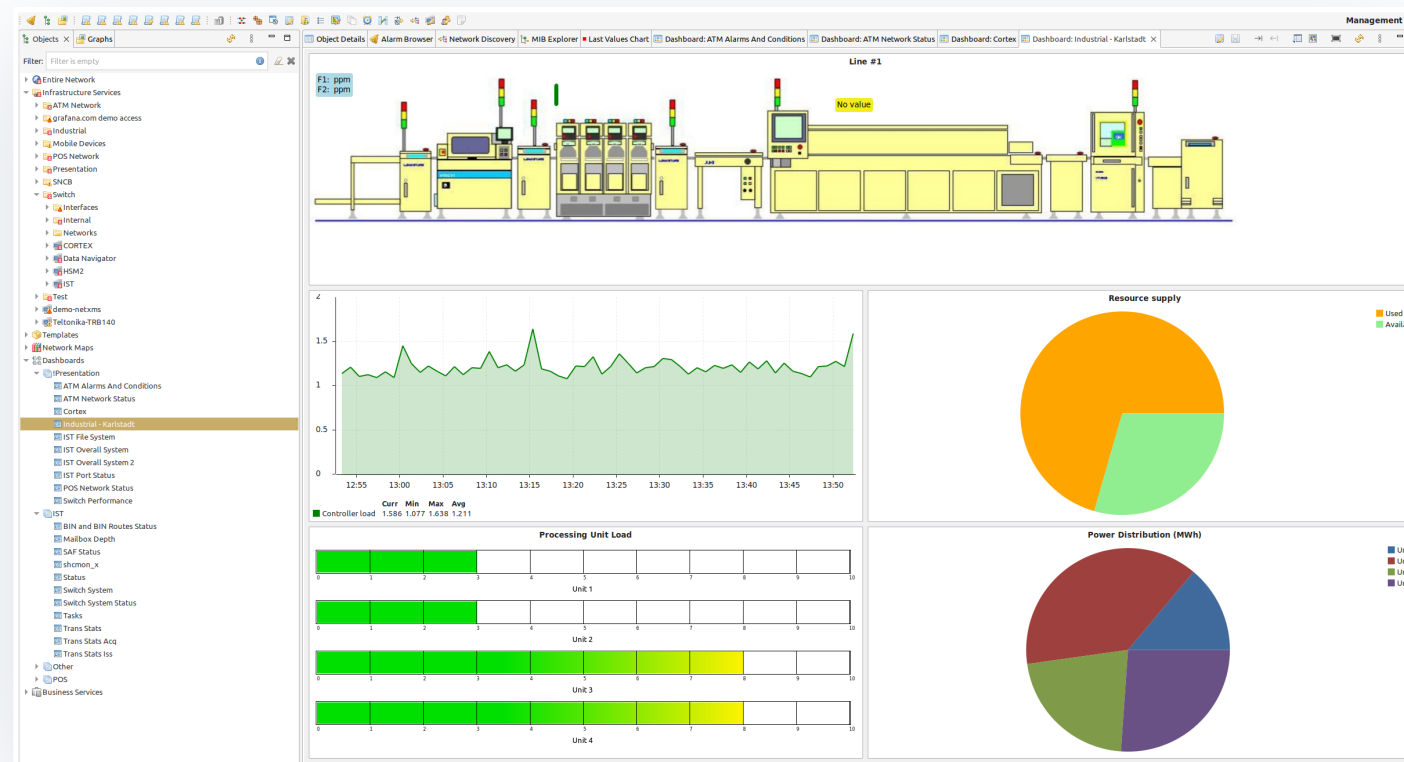- unlimited report size via report virtualisation
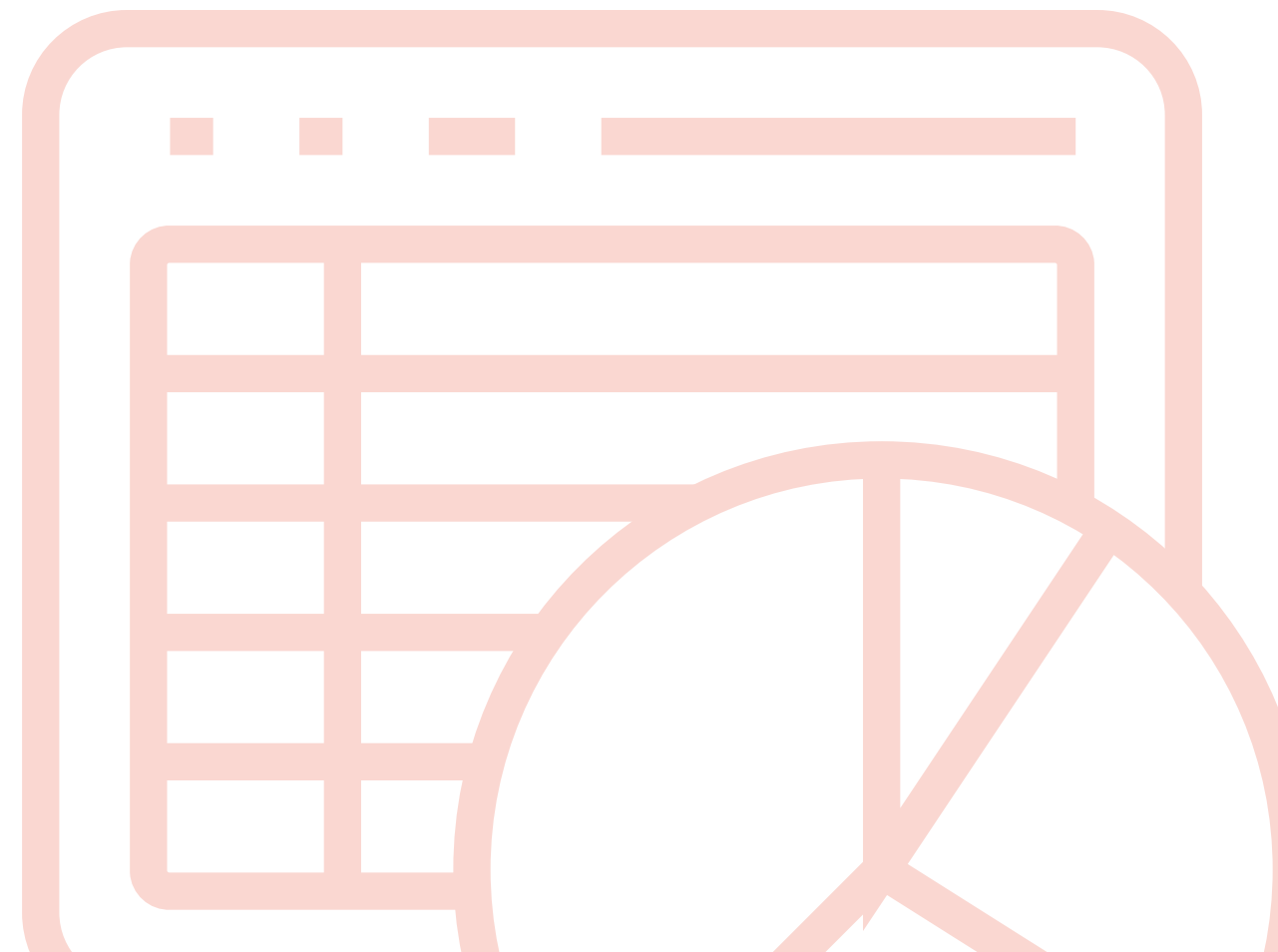
The NetXMS system screens
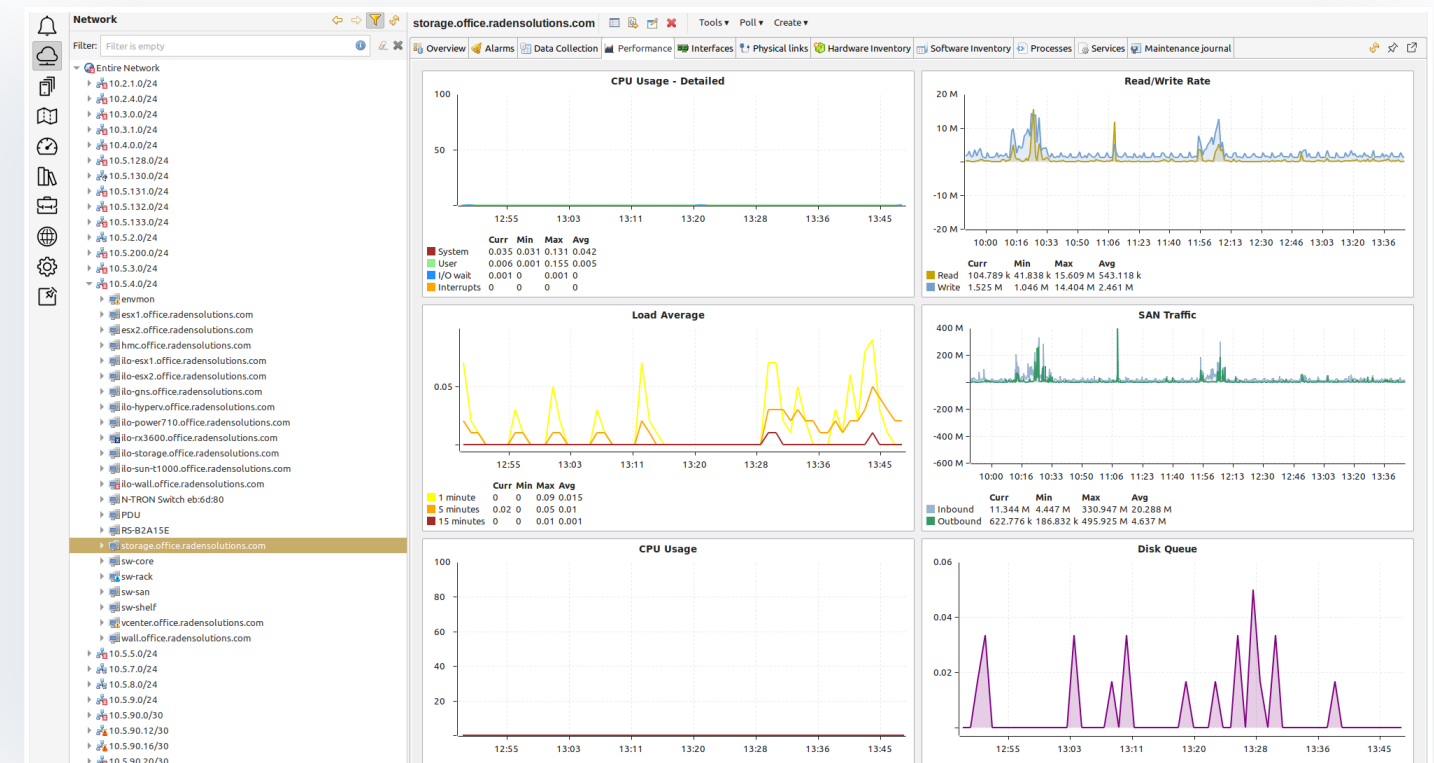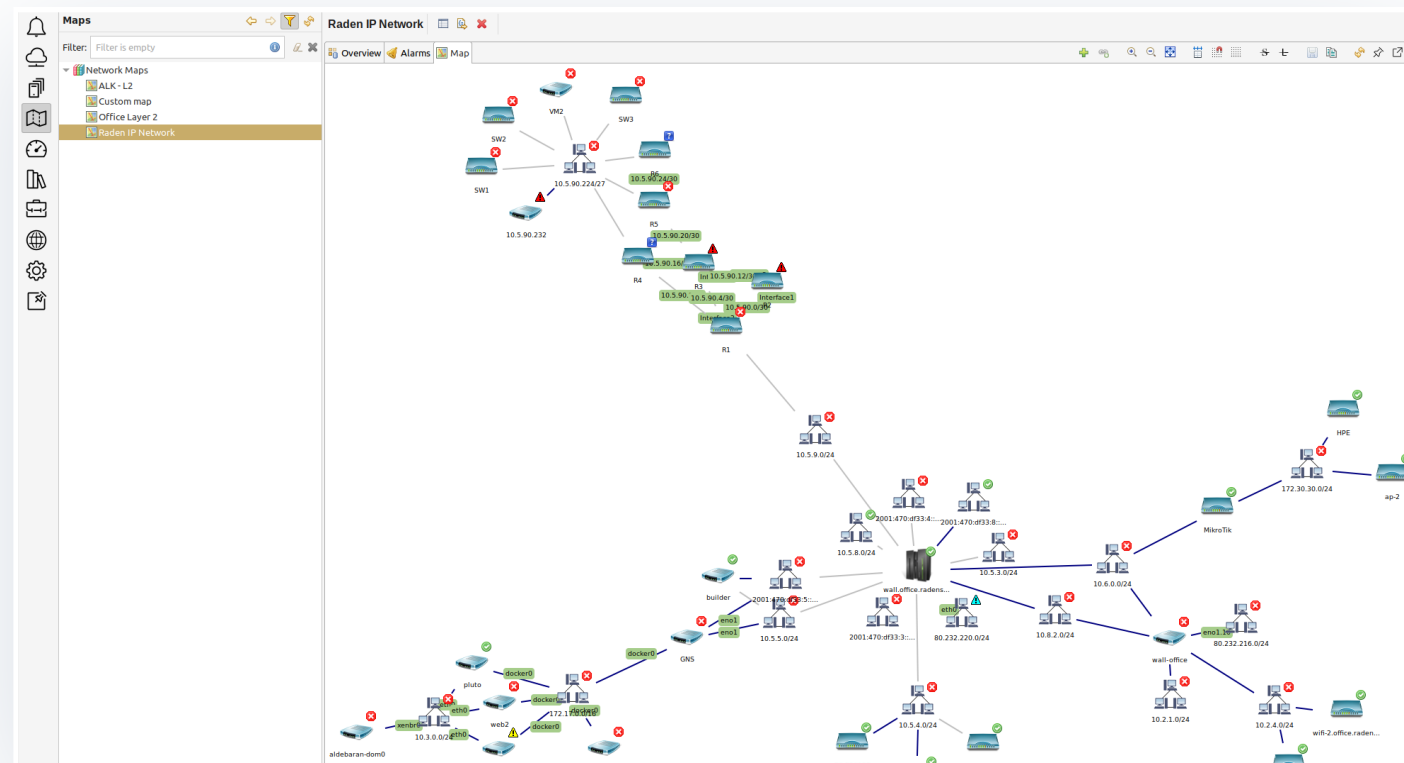
Network maps

Performance data visualisation

Dashboard

World map

Professional support and services

By weaving together solid support, training, various consulting and integration services, and development, we help enterprises deliver on their promises of service reliability and security.

Choose as little or as much support as you need. We offer:

- Remote or on-site troubleshooting, integration and deployment

- Basic, advanced and custom training courses

- Three tiers of NetXMS expert support

- Consulting services

- Custom development

Project stages

STEP 1

We meet and define tasks for the monitoring solution you require. As a result, we make a pilot offer.

STEP 2

We make adjustments and carry out customisation of the NetXMS system if required. We agree about the setup for testing — receive access to a test device, install the NetXMS server, and set up an agent.

STEP 3

We fine-tune the test system, if needed, until you're fully satisfied with the result.

STEP 4

We conduct training, as well as agree about further support.

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