



Advancing patient outcomes with next-generation technology

Mender for Healthcare and Medical Devices

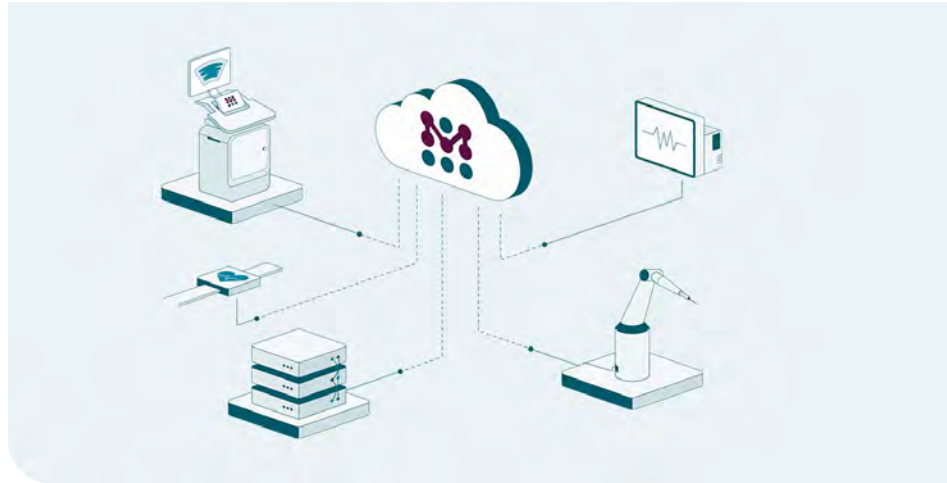
Robust and secure over-the-air updates

Key Benefits

- ✓ **Focus on innovation.** Leverage a purpose-built OTA infrastructure instead of wasting resources reinventing the wheel.
- ✓ **Update effortlessly.** Manage and update devices, regardless of complexity, environment, or connectivity.
- ✓ **Reduce operational costs.** Optimize data transfer size and minimize bandwidth usage with delta update support.
- ✓ **Stay in control.** Avoid vendor lock-in with an open-source client-server solution.
- ✓ **Ensure compliance.** Facilitate regulatory compliance with the US FDA, NIS2, and more.
- ✓ **Rely on the experts.** Trust the leader in device lifecycle management with millions of devices already managed.

42%

In a survey of adults familiar with AI, **42% expect the greatest positive impact** to be in the healthcare field



THE CHALLENGE

Today, the healthcare and medical industry is at the precipice of technological transformation.

Artificial intelligence (AI) and machine learning (ML) applications, Internet of Medical Things (IoMT) and IoT products, and smart devices possess the potential to drastically advance patient outcomes, including cutting-edge solutions and medical breakthroughs. However, these innovative technology-driven possibilities present novel challenges. Safety, physical and cyber security, data privacy, and regulatory compliance take on new dimensions with potentially life-threatening ramifications. Integrating, optimizing, maintaining, and managing a new class of healthcare products and devices requires seamless and strategic continuity. And the ever-expanding complexity and scale of devices and applications, with their independent requirements and nuances, presents an extraordinary challenge.

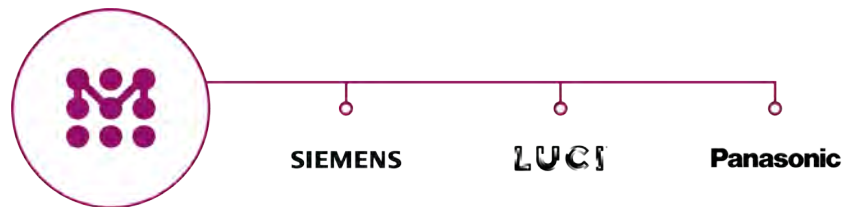
To realize the massive potential of new technology, medical and healthcare device OEMs must embrace modern, purpose-fit infrastructure. Advancing patient outcomes requires innovation, and innovation in a software-centered world requires robust and secure over-the-air (OTA) updates. Without it, innovation and, thereby, progress fail.

Despite the fundamental need for a robust and secure OTA infrastructure, the industry still relies on old, legacy approaches for device updates and lifecycle management. Manual processes and bespoke OTA solutions are resource-intensive, fragile, inherently error-prone, and high risk. Not only is there a tangible cost to homegrown OTA update solutions, but there's also an even higher opportunity cost for the business and society at large.

A robust and secure OTA update infrastructure is required for the healthcare industry to leverage today's software-centric innovations and progress.

THE SOLUTION

Mender offers robust and secure OTA updates for healthcare and medical field devices with its open source client and server solution.



Mender offers a robust, secure, fail-safe OTA update infrastructure with its end-to-end client and server solution. Powering OTA updates for devices for nearly a decade, Mender boasts a proven track record with Fortune 1000 clients in safety-critical industries, including Siemens and Panasonic.

With Mender, quickly integrate the market-leading open-source OTA update management solution into connected healthcare and medical products and platforms – without the risk of failure or instability.



Deliver secure, robust, and fail-safe remote updates. Optimize resource usage and mitigate risks with delta, automated, phased, and dynamic grouping deployments. Ensure your devices are never bricked and inaccessible with a fail-safe design.



Monitor your fleet in real time. Identify disruptions with system-wide log monitoring, automated alerts, and email notifications. Manage uptime with real-time visibility of services and applications across your fleet, preventing costly downtime and disruptions.



Configure devices and applications with ease. Define attributes, customize scripts, and track configuration changes. Manage and secure configuration changes with role-based access control, configuration history, and change log audits.



Troubleshoot instantly, and resolve quickly. Diagnose and remediate issues immediately with real-time device access, file transfers, and testing. Ensure security with complete remote terminal session replays, connection logs, and access control.

MENDER FEATURES

Medical-grade Capabilities

Robust A/B Updates. Eliminate expensive and damaging downtime due to update inconsistency or failure. Instantaneous deployment, automatic rollback upon update failure, and phased, gradual rollouts ensure update success.

Full On-Premise Support. Retain complete control and flexibility to migrate as your business evolves. Mender is deployed quickly as a SaaS-hosted service or an on-premise solution.

Delta, Application, & Configuration Updates. Improve operations and slash resource requirements. Mender's delta updates and targeted application and configuration updates reduce network traffic and device downtime.

Extensive Logging, Audits & Reporting. Easily generate reports according to regulations with an export of complete device identifiers and software bill of materials (SBOM). Audit key security events like OTA update deployments, including authorization, duration, and success.

Cryptographic Integrity Verification. Ensure that only authorized, integral binaries are installed on target systems, with secure TLS communication between device and server and cryptographic verification of binary signatures.

Highest Standards of Secure Software Development. Enhance security and gain confidence with a trusted, third-party audited solution that ensures no critical vulnerabilities exist. Mender supports clients with ongoing cybersecurity lifecycle management processes over the lifetime of every deployment and offers cybersecurity threat modeling and risk assessments for each OTA integration.

Regulatory Compliance. Easily comply with the latest regulations and align to industry standards, including FDA, NIS2, and MDR.



Reduce network traffic by **up to 90%** with Mender delta updates.



Mender offers robust, secure, and customizable over-the-air (OTA) software updates for smart devices. Powering OTA software updates for more than a million devices worldwide over nearly a decade, Mender boasts a proven track record with Fortune 1000 clients, including Siemens, Thales, and ZF Group.

Learn more about OTA software update management.

Mender is developed and maintained by Northern.tech. Founded in 2008, Northern.tech is the leader in device lifecycle management with a mission to secure the world's connected devices.



Learn more about Mender for your smart, connected IoT device fleet



Learn more about Northern.tech for your device security needs