



KEY BENEFITS

- Quickly provide new features over-the-air for customers
- Fleet-wide management eliminates manual effort to update devices 1-to-1
- Automated rollback provides confidence deploying OTA software updates

WHY MENDER

- Open source end-to-end (both management server and client component)
- Extensibility, integration into existing processes with Yocto layer (meta-mender) and backend RESTful API for flexibility to add features
- Assured of zero bricked devices due to robust atomic updates approach

Atomic updates with built-in rollback is a key requirement. We need to make sure our devices continue to work with automated rollback if the update didn't take for any reason. Mender provided that crucial capability.

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CIO, gridX



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Company Biography

gridX (<https://www.gridx.de>), is the first truly digital and decentralized energy supplier that matches prosumers of renewable energy with consumers. The gridX gateway, called gridBox, is an Internet of Things device that interconnects renewables such as solar plants and storage systems, forming a decentralized network of energy as a virtual power plant.

The electricity saved through intelligent distribution by gridBox could be saved on battery storage systems or traded to the energy market and fed back to the national grid so consumers can get compensated. With the gridX network, the revenues flow back to the members.

Challenge

gridX has a requirement for over-the-air software updates for their gridBox devices and used the Yocto Project for their builds. The driver for the requirement was having the ability to quickly support new features, as well as deploying bug fixes and patch known security vulnerabilities. New software updates with a USB stick manually to all gridBox devices in the field would be prohibitively expensive and labor-intensive.

Other requirements include an open source model to avoid vendor lock-in and atomic upgrades with a backend service. The backend service was given a focus as gridX's entire fleet of devices need to be managed and updated and 1-on-1 updates

would be very labor intensive. A RESTful API also provides the extensibility and flexibility to add new custom features.

Solution

Andreas Booke, CTO of gridX, said, *We evaluated many open source alternatives and decided on Mender due to its rich feature set while being end-to-end open source. Many solutions were either focused on the backend or client, or their backend was not freely available to use. Mender was the only solution that provided both components while allowing users to avoid vendor lock-in.*

There were other open source tools that were not able to reliably handle corrupted updates, said Joel Hermanns, CIO of gridX.

Benefits

Building a similar solution would have meant at least months of additional work for the team at gridX. Another option was to manage updates manually, i.e. trigger the update remotely and monitor the device closely. While this might be a feasible solution for a small number of devices, it can get complicated and error prone as soon as the number of devices increases and might take several days of work for a single engineer.

A resilient update mechanism for IoT devices was not gridX's core business, thus choosing Mender was the best option for a well-designed, resilient and secure update mechanism built by experts.