



Aeler C3 shipping containers assured with complete chain of trust

CASE STUDY

Aeler is a Swiss AI-driven company designing hardware and software to meet fundamental logistics requirements by revamping the standard shipping container. Aeler envisions a world where logistics operations are efficient, clean and intelligent. To that end, they believe that building the next-gen intermodal container, one of global trade's core components, will enable a new era of both economical and environmental efficiency.

Overview

Aeler's 20ft (6m) C3 shipping container is intrinsically less costly to operate than alternative designs and has an IoT sensory mesh embedded within its structure. Shippers and logistic service providers can receive information on both the container environment and the condition of the cargo.

Each C3 container is able to broadcast its location, environmental situation and condition via cellular connectivity and using a range of sensors including for temperature, humidity, pressure and light, as well as an accelerometer and GPS.

Composite materials mean the design is lightweight, durable and better insulated and suitable for payloads up to 4 tons (approximately 4000kg) more than steel containers.

Better load efficiency translates to a direct and significant OPEX reduction, particularly beneficial in some verticals, such as bulk liquids and sensitive goods.

End customers are those shipping bulk liquids, high-end luxury goods, pharmaceuticals and other sensitive goods.

Key Challenges

- Each passing day brings a new security breach to the IoT industry, capable of compromising private data and sensitive systems. Security is a clear priority for Aeler.
- Due to the high monetary value and sensitivity of certain container contents, security and environmental awareness are all the more critical for Aeler.
- The ability to quickly and securely update the software in the sensor device is also paramount, so that C3 containers remain continuously reachable and secure throughout their lifespan, no matter their location.



Approach & Key Benefits

Partnering with Foundries.io™ has allowed the Aeler team to fast-track the development of their next generation solution by enabling OTA and Firmware Over-The-Air (FOTA) updates early on in the development process. The ongoing delivery of new firmware and software features enables Aeler to continuously improve the C3 product, whenever and wherever.

The Foundries.io team's expertise in Linux Board Support Packages (BSP) helped to rapidly integrate Aeler hardware with the Foundries.io LmP (Linux microPlatform™) solution and to progress from a prototype to an industry-ready embedded system within a few months.

FoundriesFactory® via the LmP offers an always up-to-date distribution and a robust system to deploy OS and application level updates as soon as a patch or critical update is made available. Foundries.io security expertise keeps Aeler embedded systems up to date and safe, minimizing the attack surface by ensuring a proper software chain of trust is enforced on each device.

The LmP offers OTA/FOTA updates and BSP as a service by relying on an open source code base common to the Foundries.io customer pool. This benefits all users by changing the bring up from a single product BSP with a costly and lengthy project-specific approach, to a lighter customization on top of a generic platform, supporting various architectures and being continuously maintained by LmP specialists. This reduces friction, development time and costs, transferring the man hours and effort of Aeler developers from the software infrastructure over to the application logic.

Aeler can now focus more fully on the specific features that bring product differentiation in the knowledge that the platform is securely set up, regularly updated and that any vulnerabilities will be fixed and flagged to Aeler as soon as they occur. FoundriesFactory provides Aeler with a customised, embedded Linux-based solution, enabling them to get to market quicker and freeing up developers to concentrate on C3 product differentiators.



David Baur, CTO at Aeler, explains,

"Aeler now uses FoundriesFactory as a robust, easy to implement system for securing software in sensor devices within our C3 shipping containers. The easy-to-use Over the Air (OTA) update system ensures that devices are kept up to date and secure throughout their lifecycle, wherever they are located. Devices can be easily onboarded with provisioning, authentication and a secure chain of trust."

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