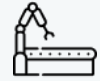


STRATEGY EBOOK SERIES

Smart Manufacturing



IOT Device Management Where Cloud & AI Improves Productivity

Brought to you by the leading OTA software updates solution in partnership with the german Google Cloud Partner SOTEC



Wisdom from the field

"If you lose the connectivity and the equipment is distributed globally in customers' plants you can't know what's going on and you can't fulfill the service."

- **Roger Feist**
**Director of Digital Solutions, Achenbach
Buschhütten GmbH & Co. KG**

"Companies should not be afraid and look for the opportunities. They should see digitalisation as an ongoing endeavour for business improvement."

- **Rolf Wutzke,**
**Business Development & Partner Management,
SOTEC Software Entwicklungs GmbH + Co.
Mikrocomputertechnik KG**

"As the adoption of connected devices continues to accelerate, provisioning secure updates to these devices becomes of paramount importance."

- **Tom Wilke,**
**Commercial Director, DACH, Mender and
Northern.tech**

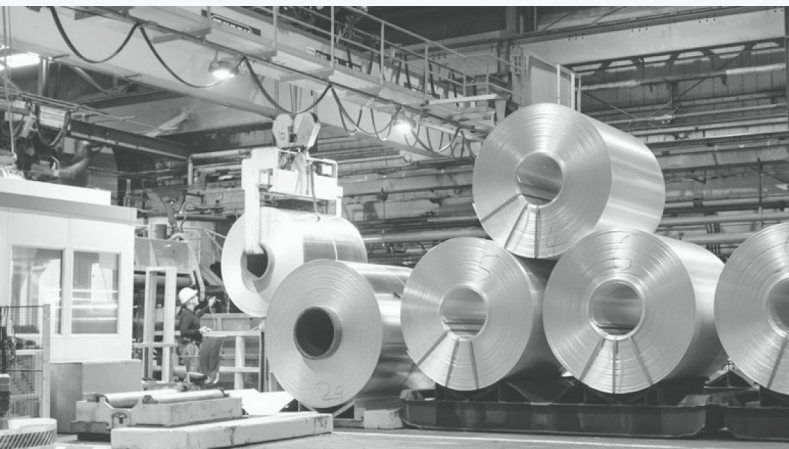
8.5%

The proportion of Enterprise IoT devices **that could fail** in the field over 3 years without robust updating ¹

Reader ROI

What Mender provides to SOTEC as a partner:

- **Robustness** - reduce support costs by getting bug fixes out to devices quickly, and in the event of power loss, updates roll back so that devices continue to operate without stoppage
- **Security** - end to end secure software updates for the gateway devices from the server to the client including support for TLS, Mutual TLS, PPK, Elliptic Curve Cryptography and Security on Hardware module
- **Innovation** - build new service models for customers by keeping the gateway devices up and running so that the data gathered can be used to better the performance of the production machines and help them achieve higher production quality



¹ Based on modelled data research from the Mender Product Management team. Based on quantitative field data, more than 8.5% device updates failed for any reason and would very likely have caused stability issues, unknown states or bricks if a robust update process like Mender was not utilized. In addition Mender prevented mistakes like deploying to incompatible hardware and updating to the already-running version, which could also have caused device stability issues.



Powering up the Production Process: IoT in action at Achenbach Buschhütten GmbH & Co. KG

New cloud and IOT integrations are driving manufacturers forward.

We look at an aluminium foil rolling machine manufacturer Achenbach as they take us on their digital journey and explain their strategy.

Achenbach's digital workflows are collecting data from machine processes, and moving it to the cloud for analysis so that new insights can be gleaned. A robust and secure IOT infrastructure is needed to administer the gateways and controllers that collect the data from the machines and sensors involved in the production process. The gateways need software updates, remote logging and configuration management. Otherwise, the process data that is gold for gathering business insights to support better decision making cannot be guaranteed. The chain could be broken from the process in the field to the analysis in the cloud back in the corporate command center.

Mender supports major manufacturers with Over-the-Air software updates for the key gateway devices that are feeding their cloud and data platforms. We took some time to speak to Achenbach's Director of Digital Solutions Roger Feist and his technology provider Rolf Wutzke from [SOTEC](#). They told us about what digital has done to progress Achenbach's business. SOTEC is also a technology partner of [Mender](#). Mender provides Over-the-Air software updating capabilities to SOTEC's IoT gateway devices.



Figure 1: Roger Feist, Director of Digital Solutions, Achenbach, is impressed by the improvements and productivity gains from applying IoT and cloud computing to the production process

Courage to pursue innovation

Industry 4.0 is a flamboyant label used to describe the impact of digitalisation on manufacturing companies. These are companies steeped in artisanship and craft developed over hundreds of years. They are proud of their mechanical heritages and rightly so. But now that deserved pride must be matched by digital agility as they look to advance their business.

Rolf Wutzke believes that many manufacturing companies are reluctant to embrace the full opportunities for process improvements from digital. They rely too much on more traditional systems already in place for decision making. For instance, manufacturing execution systems (MES) are already integrated with the production machines but they use qualified data for a single and preordained use case. The MESs are not designed to collect data for re-use across multiple use cases. IoT and cloud, on the other hand supports multiple use cases by design. Rolf advises a manufacturer to "connect and see what the data can tell their business," insisting that the more data they can get, the better it is for their business."

Rolf also encourages company leaders to be brave. "Companies should look for the opportunities and see digitalisation as an ongoing endeavour for business improvement. It's important for C-suite leadership to dive without fear into IOT, cloud and edge computing, and to work to understand their applications and potential impact. They should also encourage their IT departments to build up collaborations with factory floor operations."

Some manufacturers are trailblazers. Some have had the vision to embrace digital and are reaping the benefits as a result. One such company is Achenbach, a 570 year old "start up" as described by Rolf such is their commitment to continuous innovation.

Achenbach is a leading family owned manufacturer of aluminium foil rolling machines from Siegen-Wittgenstein, Germany. The company has, since its founding in 1452, embraced innovation.

With the support of SOTEC's and Scitis' engineers, Achenbach has implemented an end-to-end solution for metals manufacturing based on Sotec's components and cloud-infrastructure called **Achenbach OPTILINK®**. The reference architecture for this solution is named like the distributor **Scitis.io**. Scitis is a cloud platform that connects to IOT gateway devices running on production machines that roll aluminium. It enables an integration between operations that controls the production process in the machines on the shop floor, and the IT infrastructure that analyses the data from the production process in real time. In this way, the business can get key insights to help improve productivity, lower costs, and increase quality and efficiency.

Gateways on the Edge

SOTEC provides Achenbach with its [Cloudplug Edge and Edge+ gateways](#). These devices control the collection, processing and transmission of the data to and from the machine sensors to the cloud. They also support a machine learning model with bi-directional exchange of data with a Google Cloud IoT Core instance. IoT Core works in turn with a raft of Google data science tools including **Cloud Functions, AutoML, Cloud Machine Learning, Cloud BigTable, Cloud Datalab, Cloud DataFlow, and Cloud Pub/Sub**.

From this cloud command center, Achenbach's IoT devices on rolling machines in customer plants across the globe are managed. Notifications, event triggers and dashboards have also been set up in the system to support business decision making across business teams in Achenbach. Derived insights and analyses can also be easily presented in 3rd party reporting and analysis tools such as **Looker, Insights and Tableau**. The IoT gateways also need robust updating and correct configuration which has to be done remotely and securely as Achenbach's aluminium rolling machines are dotted in manufacturing plants all over Europe and Asia. This is where Mender is an essential component in the system. The precise and continuous collection of data from machines in remote locations is only possible when the operating system, system and applications running on the gateways are updating correctly.

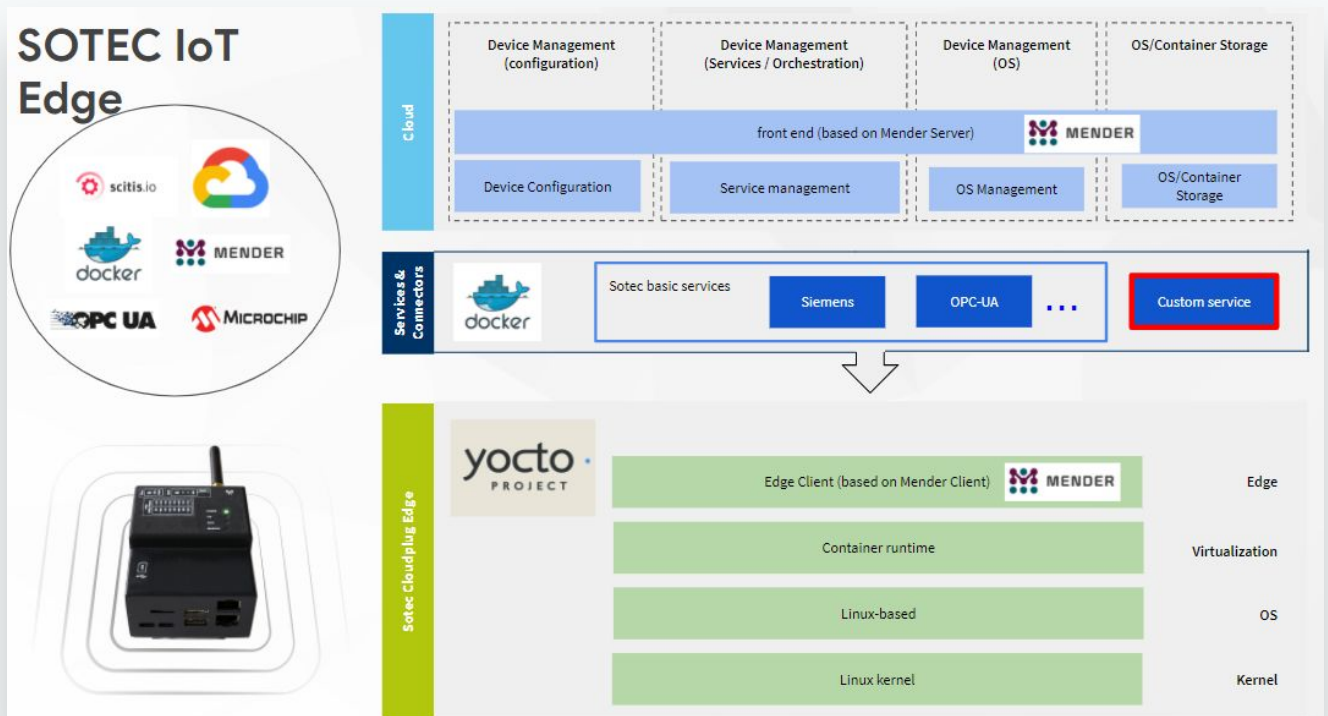


Figure 2: The Scitis platform in operation for Achenbach. Mender keeps the CloudPlug gateway devices on the industrial edge operating optimally with OS and system software updates

Device management and security

The edge stack for industry needs to be end to end starting with hardware engineered for security so that it can meet the standards to be production grade. OS updates are also essential in the field. Software updates roll back is needed, otherwise the device might not start up. A/B partitioning provided by Mender facilitates such mission critical rollbacks. The bottom line is that Achenbach has used digital to create control and peace of mind. Roger observes "If you lose the connectivity and the equipment is distributed globally in the customer's plant, you can't know what's going on and you can't fulfill the service. And the challenge gets even greater if you move from selling products to a service model. You do not just sell hardware but actually you sell the guarantee of the successful achievement of an output that is a ton of high quality rolled aluminum foil. You need to deliver on this promise to their customer" Also, not every customer has technicians on site to solve the problem when an update goes wrong. You need a robust remote solution in place.

Established manufacturers are embracing IoT, data, cloud and machine learning to get a richer real time analysis of the performance of their production machines to help their customers achieve better outcomes. The IoT device gateways are key cogs in this intelligent system and they need secure and robust updating of their OSs, systems and applications just to ensure that the manufacturers can keep in touch with the real time operational data that is their gold for proper decision making.

Learn more at:

Mender.io | **sotec.eu**