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Optimize production smartly

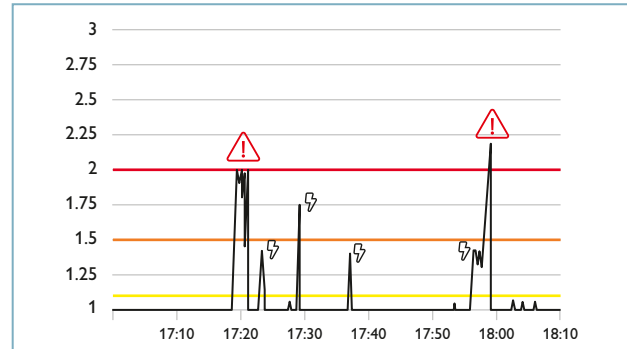## Discover hidden potentials in the factory

Detecting unusual behavior patterns in production machines and systems can not only eliminate malfunctions in processes. It also opens many potential opportunities for increasing the overall equipment effectiveness (OEE).

Anomaly detection

Anomalies can occur in various forms during production. They have greatly different causes and consequences. As production becomes larger and more complex, detecting, locating, and correcting such anomalies is becoming progressively more time-consuming and difficult.

To help skilled human workers, AI-based machine learning solutions are therefore being used to achieve the goals of CO_2-neutral production while reducing costs at the same time.

Minimizing failures thanks to early identification

Produce more sustainably while increasing productivity

No matter the industry, increasing competitive pressure and higher costs lead to the same challenge: Data evaluation is becoming more complex, and it is steadily getting more difficult to identify potentials for optimization when doing it manually.

By using the machine learning solution MLnext, Phoenix Contact was able to ensure sustainable data evaluation in its electronics production PLCnext Factory at the Bad Pyrmont site.
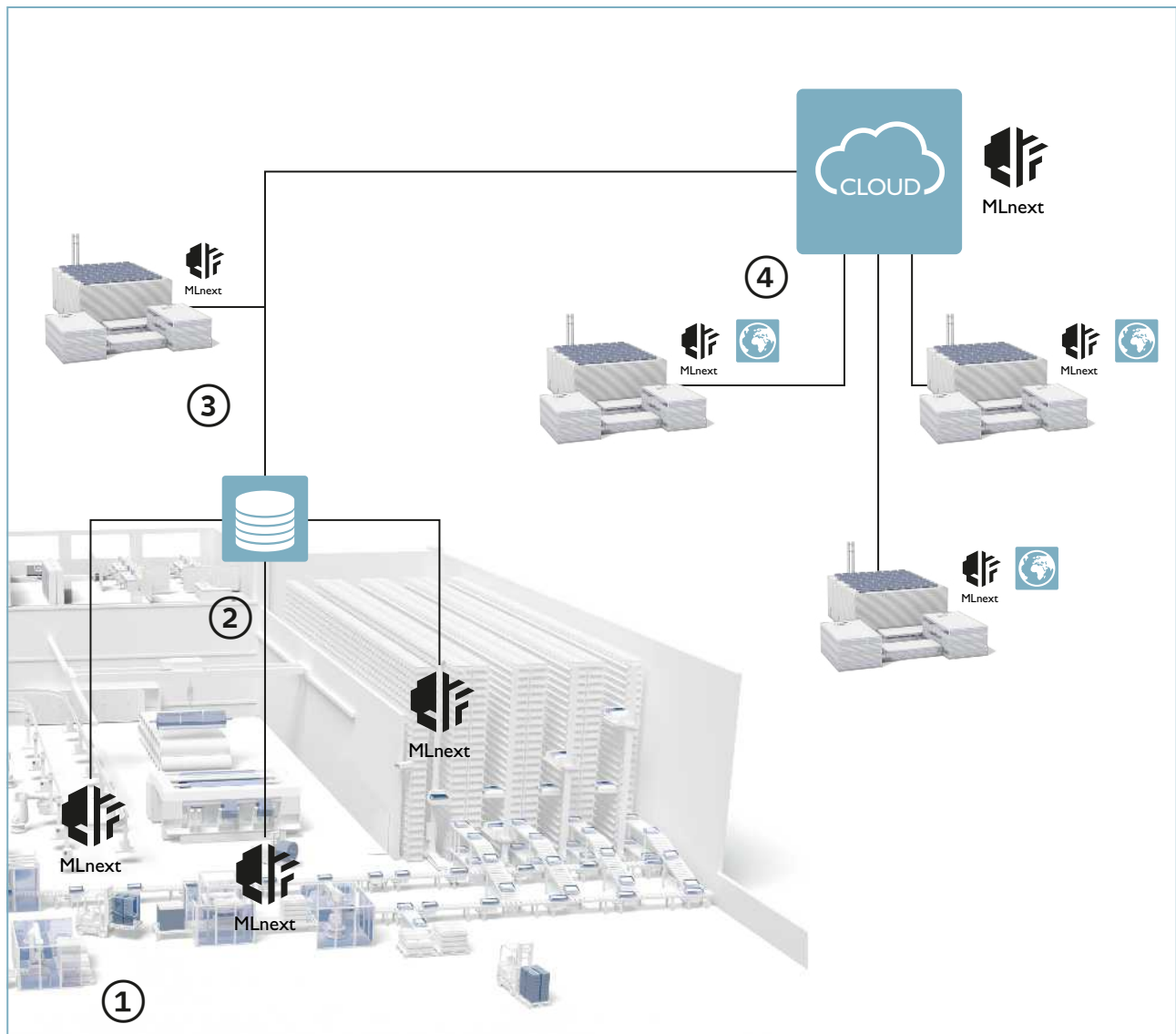
Advantages of MLnext

☑ Identifying potentials for the use of resources enables precise machine allocation and personnel planning

☑ Smart design of work processes for employees by using AI-based recommendations for action

☑ Instantly available reporting with all relevant details for production managers at any time

"Thanks to the solutions based on MLnext, we were able to increase the productivity in the PLCnext Factory by more than 10% within just one and half years. And we have uncovered even more areas of potential that we plan to tap in the coming years."

Dr. Till Potente, Phoenix Contact,
Vice President, Operations and Sustainability
in Industry Management and Automation

MLnext in practical use – scalable for any application

Optimizations on all levels

① For individual machines and equipment

To optimize individual machines, MLnext needs just a controller/edge device with container visualization, such as PLCnext with a docker.

② For the entire production hall

Data collected from the machines and equipment can be easily sent to a local server. MLnext takes care of the further processing.

③ For the entire production site

Identifying and comparing the potentials in all areas of the site. The data can be collected, compared, and evaluated across all areas.

④ For the global production network

Find optimizations based on locations around the world. To do this, MLnext can be integrated into a cloud available worldwide.

Implement machine learning now with MLnext

Phoenix Contact now provides MLnext, the ideal solution for detecting anomalies quickly and easily. This makes it possible to protect production processes from failures and optimize the consumption of the processes and equipment.

- Maximum flexibility – for use in any industry, production, and application
- Easy scalability – interchangeable non-proprietary hardware platform for increasing performance through virtualization
- Unrestricted independence – program and design your own MLnext solution or use the ready-made MLnext platform
- No previous knowledge required – MLnext can easily be put into operation without programming knowledge

Using the related MLnext services, Phoenix Contact looks at the use case together with the customer to develop a solution for implementation in the infrastructure.

MLnext

Wide range of applications

- Anomaly detection
- Localizing leaks
- Process optimization
- Predictive maintenance

MLnext Framework

MLnext Framework provides a flexible range for programming the algorithm yourself in a pre-prepared environment.

MLnext Execution

Industry-secure and encapsulated execution of neural networks in production. The configuration can be done by the user, a recommended service provider, or the experts from Phoenix Contact.

MLnext Creation

Algorithm step-by-step – MLnext Creation guides users through all phases from the very start. This means that you benefit from minimal programming effort, since only one parameterization is required.

Create more added value by using your data now

Digital transformation offers numerous opportunities to increase the flexibility, productivity, transparency, and availability of your production. To take advantage of these, the factory data provide the basis for achieving sustainable production. Phoenix Contact has scalable and already-tested solutions on hand that are divided into the following fields:

DIGITAL FACTORY *now*

Data Collection, Storage, and Evaluation:
Intelligent solutions for collecting, storing, and evaluating data to increase efficiency

Data Security:
Secure connection between the OT and IT worlds

Data Transportation:
From the sensor to the cloud – powerful networks for a stable data infrastructure

Data Usage:
Smart use of production data thanks to an intelligent, flexible, and open automation standard

No matter the industry or the size of the factory, Phoenix Contact designs the future viability of your factory individually in accordance with your requirements.

phoenixcontact.com/digitalfactorynow

Download it directly now

All MLnext solutions are available in the PLCnext Store for downloading. Create sustainable and intelligent processes for future-proof production now.

phoenixcontact.com/mlnext

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