PRODUCTION FLOOR EFFICIENCY OPTIMISATION

New Strategic Solution Significant Improves Performance of the Production

CHALLANGES

The company needs to increase production efficiency. Machines from the production line must be monitored and metered so that, the most common causes of downtime can be identified and eliminated. Additionally, it is necessary to automatically identify the wear and tear of machines that threaten to break them down. All possible breakdowns must be eliminated before they occur.

SOLUTIONS

The solution is based on monitoring machines by placing sensors on them that read machine parameters, such as vibrations, temperature, rotations, etc. Sensors are elements of the IoT infrastructure and send data to the cloud, where it is processed.

Based on the data, their standard deviation is calculated and the condition of the machines is monitored on this basis. The PARETO distribution allows for the elimination of the most common causes of downtime. In addition, the identification of worn-out elements allows you to prevent failures.

BENEFITS

Production Performance
According to PARETO principle, the most frequent reasons of breakdown are identified and reduced to minimum.

Failure prevention
Measurement standard deviation of machines vibrations allows to identify machines wear and eliminate potential failures that may occur in nearest future.

Cost optimisation
Maintenance is performed at the right time and scope.

AT A GLANCE

Objectives:

- Machine health monitoring
- Production performance improvement
- Failure prevention
- Predictable maintenance

Solution:

- IoT hardware components
- Cloud service
- Employee dashboard
- Background processess

PROJECT DETAILS

Client
A company that produces parts for industrial production lines.
Employees: 250 – 500

Solution
IoT, Cloud service

Technology
IoT: MQTT, NodeRed, noSQL

Cloud Service: AWS Cloud, Java Spring Boot, Kafka, Angular

Tools
GitLab CI/CD, AWS DevOps, Terraform

ELECTRIC VEHICLES SMART CHARGING

New Strategic Solution Allows Electric Vehicles Smart Charging

CHALLANGES

The company needs to enable its customers to smart charge electric cars with chargers manufactured by the company, that are standard equipment of electric cars. It is necessary to support smart charging via the mobile application. Customers must be able to take advantage of attractive tariffs when energy is the cheapest so that they can reap the benefits themselves. Previous versions of chargers are not supported by the software so, the company and the customer are not aware of charging state.

SOLUTIONS

The solution integrates all chargers produced by the company registered in the IoT infrastructure. Two-way communication allows you to receive data from chargers, incl. for transactions, meter values, etc. and sending a configuration to chargers that allows for optimal charging with the use of variable electricity tariffs. The backend uses advanced algorithms to calculate the optimal charging parameters. Communication is based on the OCPP protocol.
The end user manages his chargers and charges via the mobile app. The solution meets very strict security requirements in accordance with the IEC 62443 standard.

BENEFITS

Smart charging
Remote management of the charger configuration allows for the application of the currently optimal charging parameters.

Competitive advantage
The use of innovative algorithms allows you to build a competitive advantage on the market

Support for service
The company's service has complete knowledge about released chargers, their states, potential problems, transferred data, and also allows you to manage the firmware of chargers

AT A GLANCE

Objectives:

- Enable Smart Charging
- Remote charger configuration
- Management via mobile app for the end user
- Support for service

Solution:

- IoT EV Chargers
- Cloud services for charging, devices and mobile app
- Dashboard console
- API for mobile APP
- Compliance with IEC 62443 standard

PROJECT DETAILS

Client
A company that produces EV Chargers.
250 - 500 employees

Solution
IoT, Cloud service, API for mobile app, dashboard

Technology
IoT: PKI, X.509, IEC 62443, OCPP 2.0.1, Firmware
Cloud Service: AWS Cloud, Java, SNS, SQS, PUSH, Kinesis, noSQL, Redis, Angular, RDS, CDC, WebSocket, OCPP

Tools
GitLab CI/CD, AWS DevOps, Terraform

PRINTING SERVICES AS SAAS IN THE SUBSCRIPTION MODEL

New Strategic Solution Significant Improves Available of Service for new Customers

CHALLANGES

The company needs to modernize its services in the field of offset printing so that it can provide services in the SaaS model.
This will allow to reach new customers who so far did not have adequate facilities to install large-size printing machines.
The company has no experience in migrating on-prem solutions to the cloud.

SOLUTIONS

The solution consists in adapting the solution to the requirements of the cloud and includes: designing the infrastructure in the cloud, preparing the automation of the installation, adjusting the software to the requirements of the cloud, using native cloud services, etc.

Additionally, in order to launch the service in the Cloud, a new Security was designed and implemented, a multitenant mode with isolated data was prepared, and the supported types of printing machines were expanded.

BENEFITS

Increase in sales of services
thanks to the SaaS model and subscription, the company acquired new customers

Digital transformation
The implementation of the first solution to the cloud is a step towards the digital transformation of the company. The cloud solution allows you to significantly automate processes and integration with other solutions.

Time-to-market
Significant Improvement in time-to-market from even 3-month to 1-day release

AT A GLANCE

Objectives:

- Migrating existing on-prem solution to the Cloud
- Reducing time-to-market
- Subscription model
- Providing aproppriate Security

Solution:

- Cloud-based SaaS solution
- Multitenant support
- New products available
- Full automation including tests

PROJECT DETAILS

Client
Heidelberger Druckmaschinen AG
10 000+ employees

Solution
Cloud service

Technology
Cloud Service: AWS Cloud, Docker, Java Spring Boot, Angular, OAuth2, REST API

Tools
GitLab CI/CD, AWS DevOps, Terraform

NEW INNOVATIVE PRINTING SERVICES

New Innovative Printing Content Management Solution Significant Meets Market Expectations

CHALLANGES

The company needs to respond to a new market need in the printing industry that allows for dynamic creation and modification of content for printing. The assumption is that customers do not have advanced knowledge of handling complex and specialised graphic programs, at the same time the prepared material must meet the standards understood by printing machines.

SOLUTIONS

The solution is based on the use of the Adobe engine to create and modify the content to be printed. Thanks to this, the output format is acceptable by printing machines. In the UI layer, an advanced and sophisticated interface has been created, thanks to which the user can create documents of any structure and content using friendly drag & drop mechanisms. Each element in the document has its own coordinates and graphic representation, which allows for independent modification of each of them. The mechanisms used are highly efficient, thanks to which working with a document containing several tens of thousands of elements is smooth.
The entire solution was embedded in the AWS cloud.

BENEFITS

Innovative service
The service dedicated to printing houses is innovative on a global scale. As a result, the position on the market was even more strengthened.

Simplicity
Thanks to the sophisticated UI and complex business logic, a very friendly solution was obtained that does not require specialized domain knowledge.

Digital Transformation
Service fully automated, incl. tests, deployment, etc.

AT A GLANCE

Objectives:

- Printing content management
- Printing document management
- Printing process support

Solution:

- Sophisticated frontend
- Cloud service
- Media manager console
- Background processess

PROJECT DETAILS

Client
Heidelberger Druckmaschinen AG
10 000+ employees

Solution
Cloud service

Technology
Cloud Service: AWS Cloud, Java Spring Boot, Angular

Tools
GitLab CI/CD, AWS DevOps, Terraform, Adobe

ACCESS CONTROL TO RESTRICTED AREAS

New Solution Significant Reduces Operational Costs and Improves Security

CHALLANGES

The company dealing with the protection of closed zones wants to reduce operating costs and at the same time introduce to the market an alternative to classic remote controls with which users open and close gates and barriers. The company wants to manage devices remotely as well as configure them remotely. He wants access to closed zones to be given and received with immediate effect.

SOLUTIONS

The solution consists of a hardware part - a module (based on the ESP32 controller and the RaspberyPI system), eTAGs RFID and RFID readers in the VHF frequency, as well as in the form of software that integrates all modules in the IoT infrastructure and the administration console.

ESP32 controllers have installed firmware that supports the RFID reader, which is responsible for access to closed zones only for registered RFID eTAGs. eTAGs are issued by the administrator and registered in the system as authorized to gain access.
The system works in the SaaS model in the cloud in multitenancy mode.

BENEFITS

Cost reduction
eTAGs are several dozen times cheaper than classic pilots. In addition, the administrator does not have to configure devices on site, which reduces logistics costs.

Online monitoring
Each entry and exit to closed zones is recorded in real time, which allows you to keep strict records.

Remote management
thanks to the operation in the IoT infrastructure, it is possible to remotely configure devices and manage the list of authorized eTAGs

AT A GLANCE

Objectives:

- Machine health monitoring
- Production performance improvement
- Failure prevention
- Predictable maintenance

Solution:

- IoT hardware components
- Cloud service
- Employee dashboard
- Background processess

PROJECT DETAILS

Client
Company providing security services 250+ employees

Solution
IoT, Cloud service, RFID

Technology
IoT: MQTT, UHF, Balena, Raspbery PI

Cloud Service: AWS Cloud, Java Spring Boot, Kafka, Angular

Tools
GitLab CI/CD, AWS DevOps, Terraform