From Machine Data to Data Driven Services

Reto Amstad | Consultant Plant Data Services

siemens.com/mindsphere

SIEMENS
Ingenuity for life

SIEMENS

A lot can happen in a year

>50% of the world's data was created last year … but **less than 0.5%** was analyzed or used
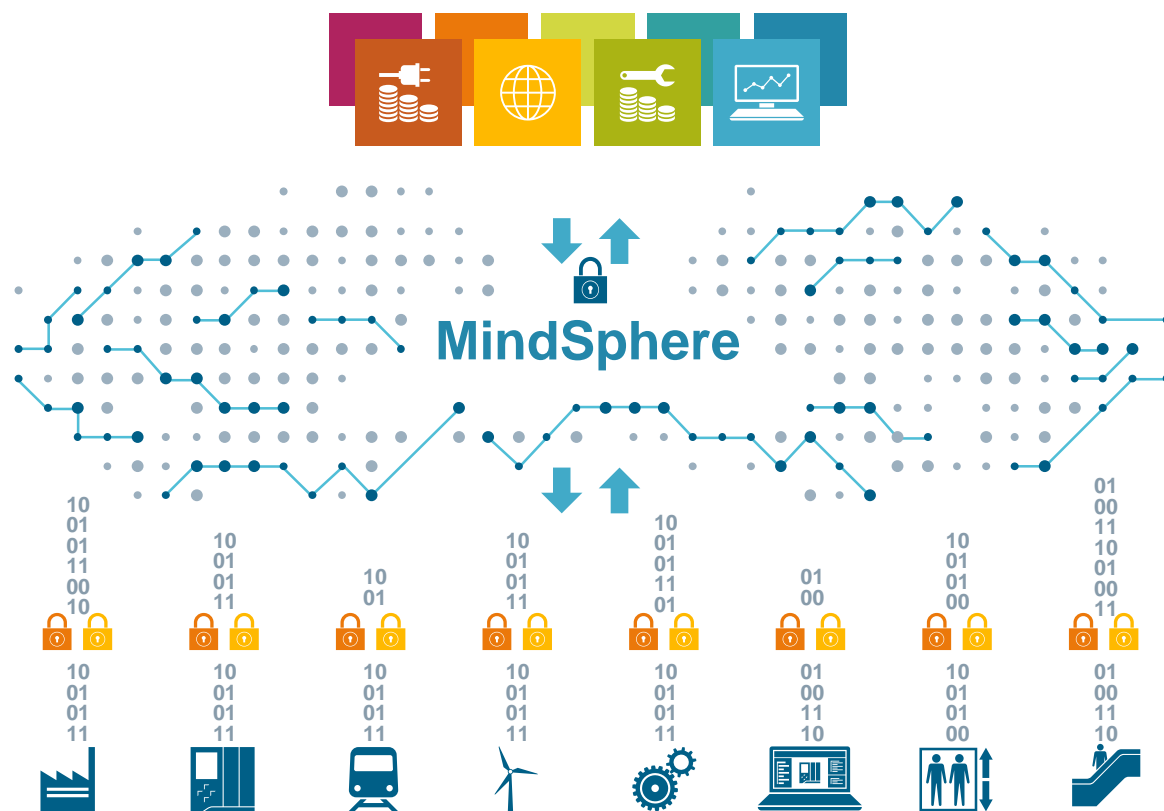
…open Eco-System

Source: carlosbscience.blogspot.com

Source: zastavki.com

MindSphere – The cloud-based, open IoT operating system from Siemens

MindSphere

MindApps

- Use **apps from Siemens, partners or develop own** apps
- Gain **asset transparency** & **analytical insights**
- Subscription based **pricing model**

MindSphere

- Open interface for development of **customer specific apps**
- **Various cloud infrastructures: SAP, AtoS, Microsoft Azure** offered as public, private or on-premise (planned)

MindConnect

- **Open standards** for connectivity, e.g., OPC UA
- **Plug and play connection** of Siemens and 3rd party products
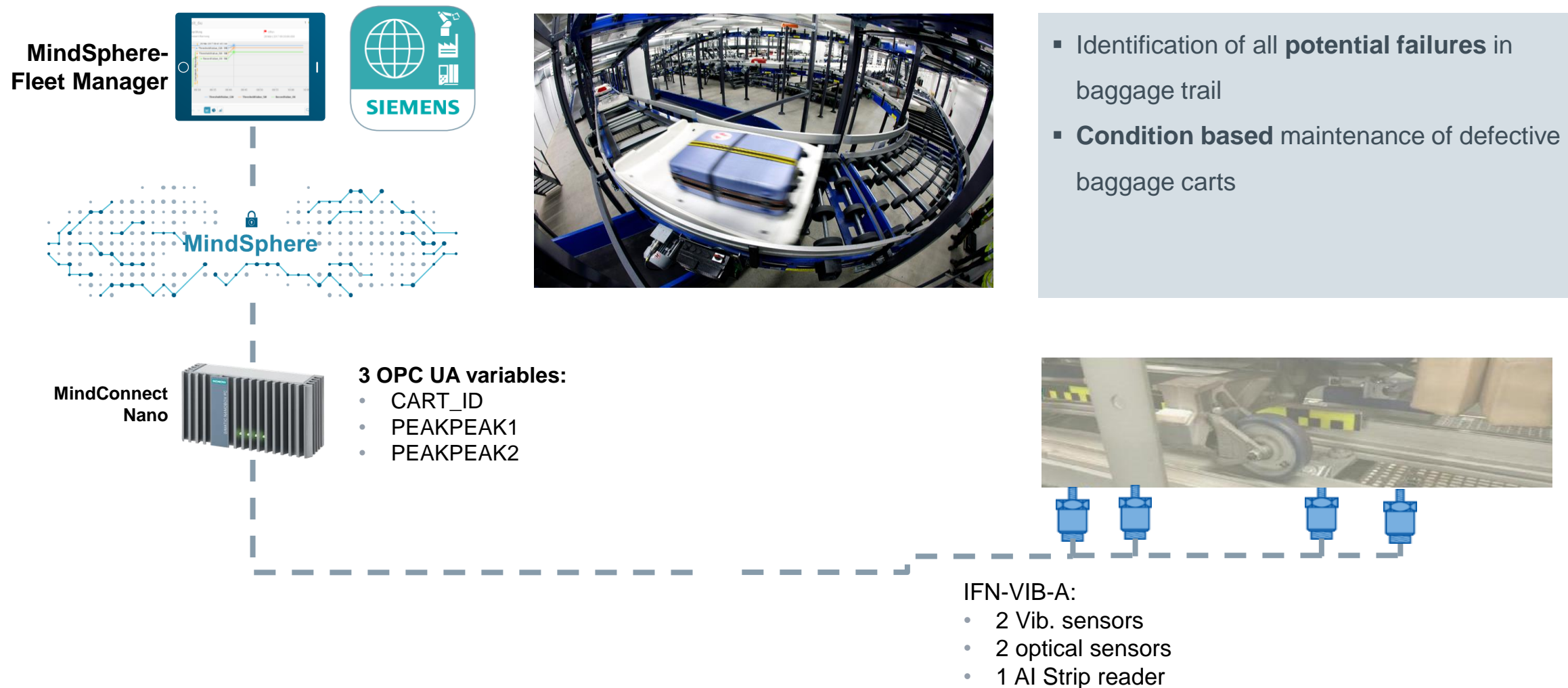- **Secure** and **encrypted** data communication

Use Case: New digital Service-Model for COFAC AG:
online monitoring of Oil Quality

MindSphere-Fleet Manager

MindSphere
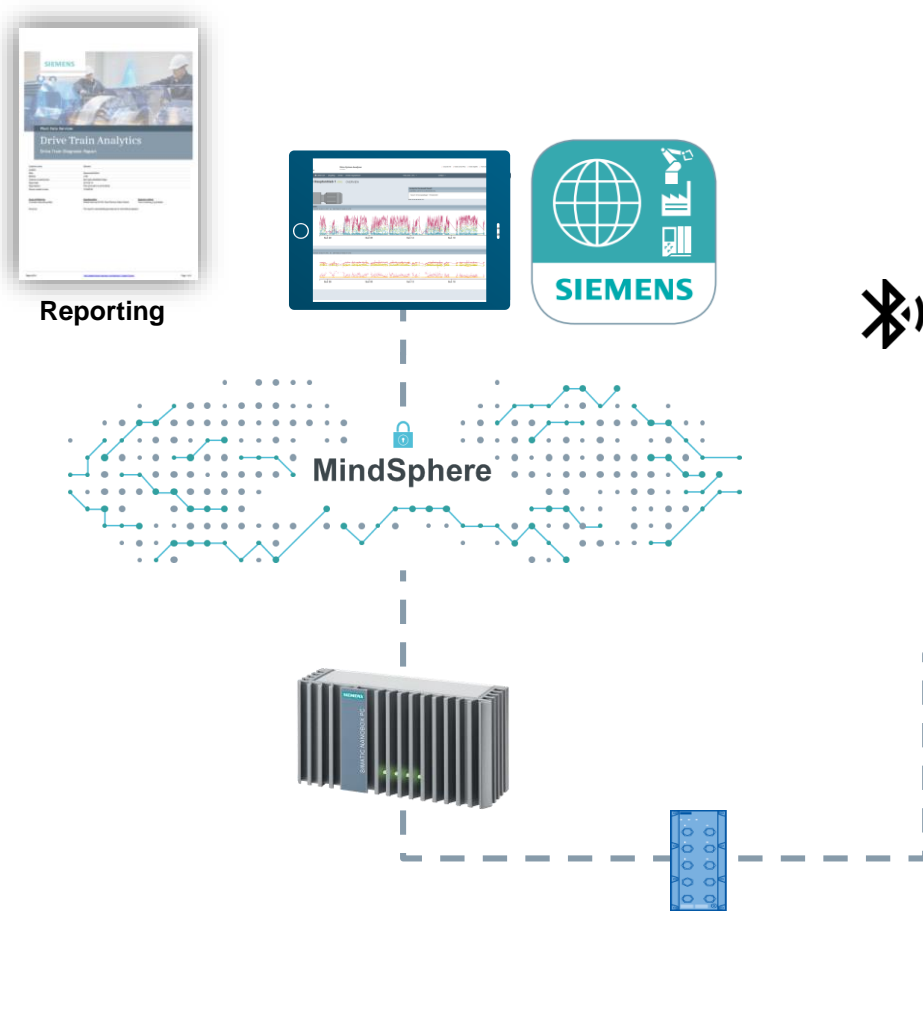
MindConnect Nano

COFAC
Cleanliness Management

- Continuous **monitoring** of oil quality
  - e.g. for steam turbines, hydraulic systems…
- Proactive **alarming**
- New **digital service** model for COFAC AG
- **Product-as-a-Service** model to end customers
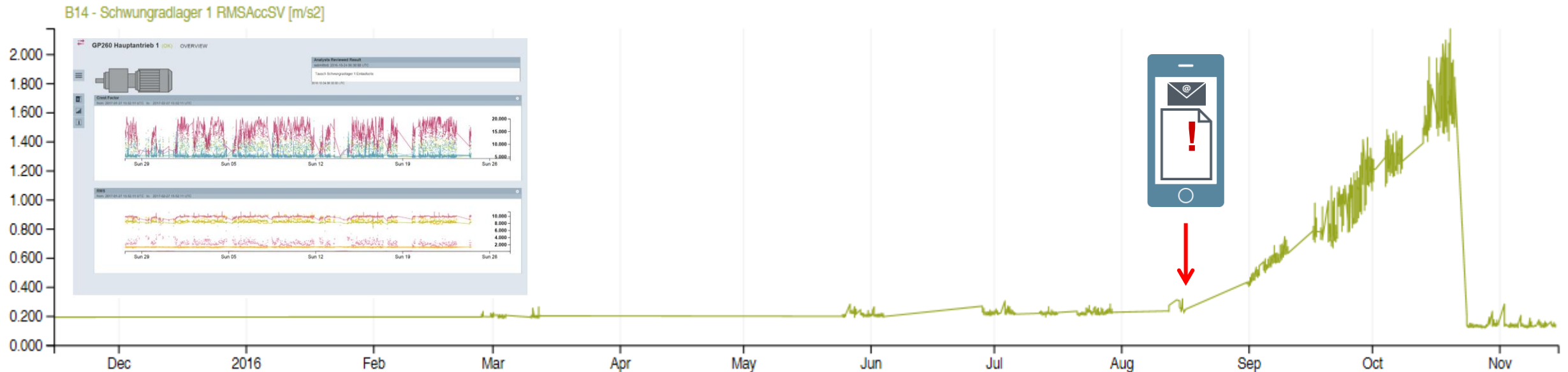
Use Case: Failure prediction for transport systems

MindSphere-Fleet Manager

MindSphere

- Identification of all **potential failures** in baggage trail

- **Condition based** maintenance of defective baggage carts

MindConnect Nano

3 OPC UA variables:
- CART_ID
- PEAKPEAK1
- PEAKPEAK2

IFN-VIB-A:
- 2 Vib. sensors
- 2 optical sensors
- 1 AI Strip reader

Use Case: Condition-monitoring for drive-trains
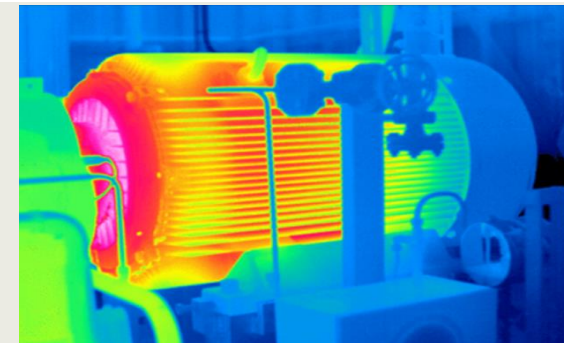

Reporting

MindSphere

- **Online condition monitoring** of mechanical components

- **Enables planned preventive** maintenance

- **Monthly reporting** of **equipment status** to customer

- **Decision support** for maintenance, operations and management

Real example:
bearing failure at the flywheel of an automotive press

- Trend monitoring of RMSAcc shows an increase middle of August.
- The bearing was running for **two more months** and the downtime of the press was planned.
- The values for RMSAcc are lower than the previous normal level after the change of the bearing.

some personal learnings…

"Start smart not big…"

"Start simple…"

"Lonely wanderers will not survive…"