Achenbach OPTILINK®
– A Big Data Platform for Industrial Cloud Applications

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Sept. 5th, 2017
Potential and risk of industrial gross value in Europe by 'Digital Transformation'[^1].

- Less participation in products of the information- and communication-technology (ICT)
- Loss of customer interface in consequence of lacks in data-knowhow.

- Influence on standards. Benefits from standards
- Link between business-ICT and production-ICT
- Build-up of own digital competencies ranging ‘from data-acquisition and –processing over IT-networks and automation to development of new business-models at the digital customer-interface.’

Achenbach Buschhütten on the way towards digitalization

Achenbach one of the oldest family-businesses in Germany (founded 1452), it is up to now by 100% family-owned and managed in the 7th and 8th generation of the owner-family.

Today Achenbach is system-supplier for rolling mill equipment and slitting machines in the field of non-ferrous metals.
„You can have data without information, but you cannot have information without data.”[1]

1 Collect  2 Save  3 Analyze

4 Machine Learning/ AI  5 Support Optimization

[1] Daniel Keys Moran, Programmer and Author
IT-Security in the Cloud

- Stateful Inspection Firewall
- Port Restrictions

Cloud Storage

HTTPS

- Two-Factor-Authentication;
- User Management by Groups/Roles
- SAML
Transmission of OPC/UA-Data

Machinery Network

Cloud
Settings for Cloud Connection

Global Settings
- Send interval: 10
- Offline buffer size: 500

Data Format
- Legacy
- Single Timestamp, All Data (inchron)
- Single Timestamp, Optimized Data (asynchronous)
- Sampling interval: 150

Update
- Update URL: https://optlink.achenbach.de

Configuration
- Import, Export

Data-Backend
Google BQ
Cloud

PLC-Data
OPC UA-Service

OPC UA - Unified Architecture
Buildup of an „IBA-SQL“ Database

.DAT-Files → ibaDatCoordinator v1.24.0 → ibaAnalyzer → DB → SQL → Database
Transmission of IBA-SQL-Data

MySQL Configuration

- **Query Cycle Time**: 10 sec
- **MySQL Server IP**: 172.16.10.235
- **MySQL Server Port**: 3306
- **MySQL Database Name**: iba_db
- **MySQL Server User Name**: cloudplug
- **MySQL Server Password**:
- **Base URL**: https://sqllink.achenbach.de

Configuration:

- Import
- Export

Data-Backend

Cloud

Google BQ
Transmission of .DAT-Files

Windows FS
SMB-Access
Upload

SMB-Access

Backend

Datastore

Download

Request

HTTPS

As per your upload request, here are the links to the requested files:

https://storage.googleapis.com/achenbach-optlink.appspot.com/completed_uploads/9050110/iba_COILS/2017/04/27/17/220.170.170.dat?GoogleAccessId=achenbach-optlink.appspot.com&Expires=1493425994&Signature=2DA1uUk3hSD3tVj1V%v18%P%jQG%U03Gm2z%9eYnqf%4S1T%tR%v

https://storage.googleapis.com/achenbach-optlink.appspot.com/completed_uploads/9050110/iba_COILS/2017/04/27/17/220.170.170.dat?GoogleAccessId=achenbach-optlink.appspot.com&Expires=1493425994&Signature=2DA1uUk3hSD3tVj1V%v18%P%jQG%U03Gm2z%9eYnqf%4S1T%tR%v
Backend Concept

Realtime-Visualization

Analysis-Modules

Backend: Stream-Management

Evaluation-Tasks:
- TriggerA: Task1
- TriggerB: Task2
...

(X,t)

Cloud-DB

Other Cloud-DB

Long-Term-Storage

Other Cloud-DB

Analysis-Modules

Cloud-DB
Login:
Professional User Management providing group- and role-structures.

Fast Overview:
‘Assets‘ organized by machine-groups.

Cockpit:
Online-Views and Realtime-Grafics.

Analysis-Dashboards:
Flexible and interactive.
Integration Roadmap

Google AppEngine
OneLogin
Tableau Server
RapidMiner Server
Matlab Service

Cloud-DB

Cloud-DB
Results of Solution-Frameworks

Full Series for A8011 (141 Coils) with Startthickness >3001 µm and Endthickness <800µm (52 Coils)

Compare All Processes

- Cell Thickness: 345 µm
- Cell Thickness: 390 µm
Thank you for your kind attention!

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