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Sofyne expertise for Data Collection Automation

Generic Overview of Equipment Data Acquisition

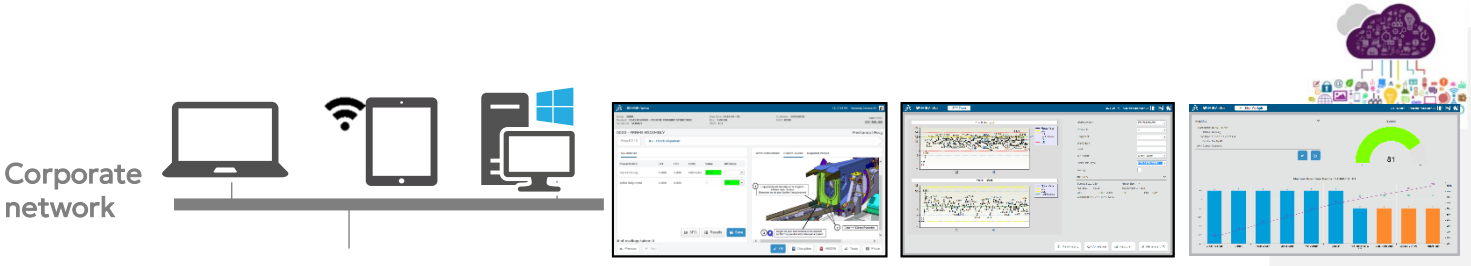
- Apriso Machine Integrator features
- DELMIA Apriso
  - Interoperability
  - Subscribe technologies
- Sofyne's Know-How Mapping

Why automating real-time data collection ?

Apriso Machine Integrator features

- Distributed bi-directional machine connectivity
- Communicate with the machines either through
  - RS-232,
  - Ethernet TCP/IP,
  - OPC DA & UA,
  - Modbus TCP/IP,
  - Other configurable data sources: UDP, Bluetooth, USB etc.
- Configured centrally and deployed locally
- Manageable remotely
  - real-time monitoring, consulting logs
- Supporting buffering capabilities
  - store & forward features
- Fully integrated with the process workflow
- Supporting the concept of templates (design interfaces by families of equipment)
- Supporting redundant configuration

DELMIA Apriso Interoperability in a nutshell



Additive *Robots* *CMM* *SCADA/ PLC* *DNC / NC Controller* *Test Equip* *Shop Tools* *Ovens*

Shop-Floor connectivity:
- OPC / RS232 / XML / RFID
- DNC files
- Read-Write
- OPC , OPC-UA certification
- UDP, TCP, Bluetooth, USB, Http

IIOT support:
- MQTT, Kafka Broker, AMQP

Business Integration
- Web Services, REST/SOAP, XML

Data Export / Import
- SQL (Views)
- ETL (SSIS)
- MDX (Cubes)
- CSV, XML, Excel, text, Access

DELMIA Apriso publish

Subscribe technologies

OneDELMIA (3DEXPERIENCE)

- Enterprise System Bus

MQTT Brokers

- Smart devices connectivity

Kafka

- Enterprise Message Bus

AMQP brokers

- Cloud and Enterprise Message Bus

Internal communication

- SignalR protocol based
- Between apps in Apriso Portal

Sofyne's Know-How Mapping

SCADA & PLC*s*

OPC, OPC-UA

- Siemens
- Beckhoff
- Omron

NFC reader

USB

Platform scale

RS232, ModBus

- METTLER
- SARTORIUS

APRISO Machine Integrator

Interlocking

MES Core application

Shop tools

ModBus

- Screwdrivers torque controlled
- Torque wrenches

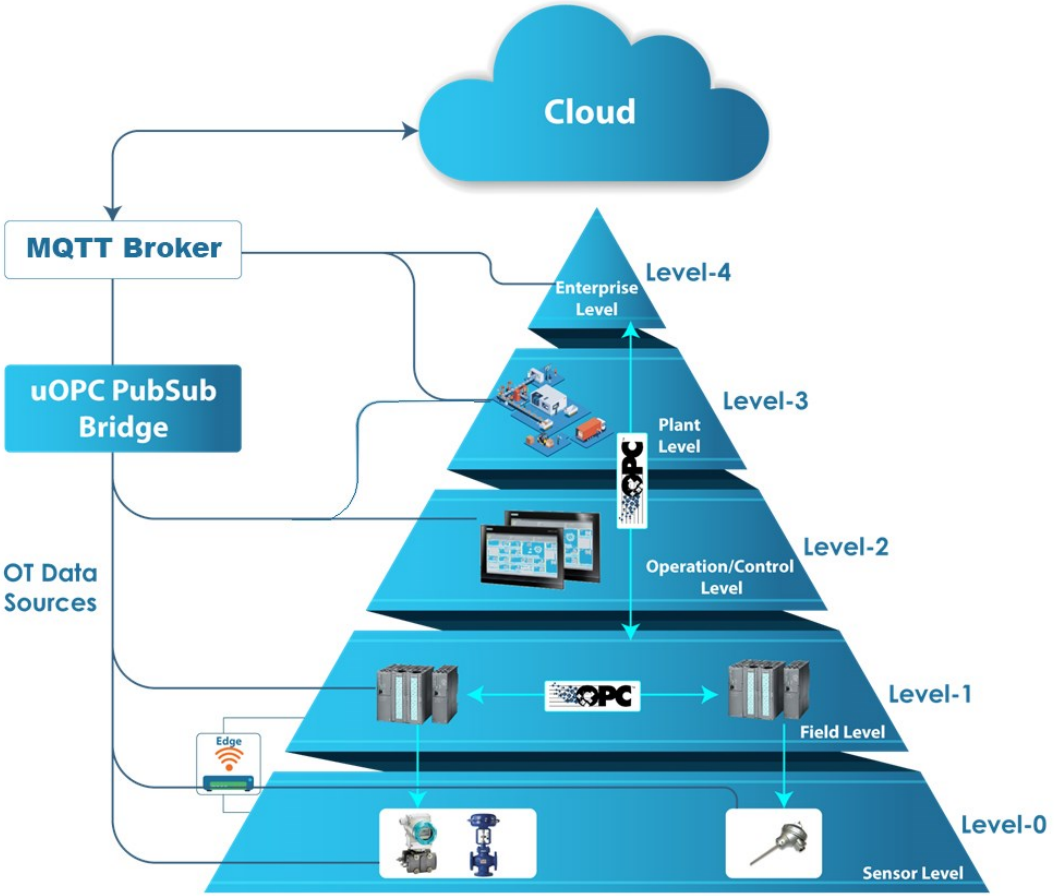
Smart devices

- Pressure camera
- Test equipment

Typical architecture for data collection

Data NOT stored in the MES
- QUALITY
- HISTORIAN

Data stored in the MES
- PERFORMANCE
- History table/machine
- LABOR



Data collection relevance VS Organization goals

Data collection relevance VS Organization goals

GOALS

- **Real-time visibility** into equipment **performance** and operational data
- Real-time data collection drive **meaningful insights** and decision-making

RELEVANCE

- Manual data collection is time-consuming, error-prone, and inefficient / for repetitive tasks
- Be careful with huge requests from the workforce
- Interlocking : connect MES application to PLC

Data collection relevance VS Organization goals

GOALS

- Ensure the **required level of quality**
- **Quality control plan** : push to operators the procedures mandatory to run

RELEVANCE

- Select only relevant data / parameters
- Traceability : think global to explore a deep data historian