GOAL

EAF compliant IoT Tool Suite and Services verified with the "Data-based digital twin for electrical machine condition monitoring" use case
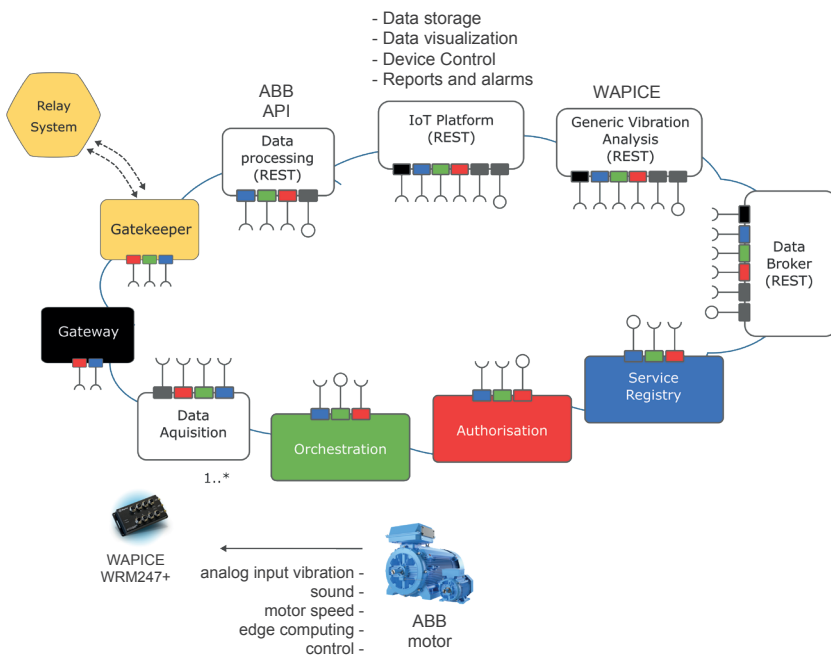
Challenge

IoT-TICKET® is a complete Internet of Things (IoT) tool suite and platform that allows to build web, mobile, cloud and reporting applications with big data analytics and easy to use tools.

From drag & drop content building to plug & play connectivity, edge computing and scalable enterprise management, the award-winning solution allows to create production-grade IoT applications in minutes, without further need for expensive software development.

Within Arrowhead Tools, Wapice (in close cooperation with task partners ABB, VTT and CSC):

• Provides Eclipse Arrowhead Framework (EAF) based hardware, tools, services, concepting and solution integration for the ABB light weight virtual twins use case.

• Provides generic EAF compliant services in cloud (e.g. Vibration Data Analysis) and continues the transformation of the IoT-TICKET tool suite for modular EAF compliance aiming at providing individual access to the composing tools and services from the EAF.

• Contributes to the requirements and verification of the EAF developments with focus on dynamic and advanced service orchestrations.

ORCHESTRATION

1. Data Acquisition (WRM247+)
Gets information on where to forward the measured data
- · Data Processing REST API (ABB API)
- · Data Storage REST API (IoT-Ticket)
- · Data Broker REST API

2. Generic Vibration Analysis (WAPICE)
Gets information on where it could send/store data processing results
- · Data Storage REST API (IoT-Ticket)

3. IoT Platform (IoT-Ticket)
Gets information on which vibration analysis service it could use
- · Generic Vibration Analysis REST API (WAPICE)"

4. Data Processing (ABB API)
Gets information on which vibration analysis service it could use
- · Generic Vibration Analysis REST API (WAPICE).

Gets information on which data visualisation, notification/alarm and reporting services it could use
- · Dashboards REST API (IoT-Ticket)
- · Notifications and Alarms RES API (IoT-Ticket)
- · Reports REST API (IoT-Ticket)

5. Data Broker
Gets information on where to forward data in new format

FLOW

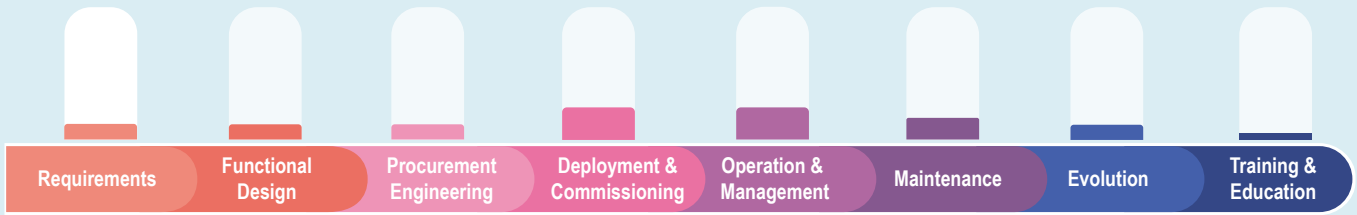**1.** WRM247 + forwards measured data to endpoint REST APIs provided by orchestation.

2. Generic Vibration Analysis processes data and replies with results and/or forwards also to IoT-Ticket

3. IoT Platform (IoT-Ticket) stores data (measured and processed), offers dashboards for data visualisation, sends notifications, alarms, reports

4. Data Processing (ABB API) - stores and analyses data from WRM247+, send results (values and reports) to IoT- Ticket, can use the Generic Vibration Service.

Engineering Phases

| Requirements | Functional Design | Procurement Engineering | Deployment & Commissioning | Operation & Management | Maintenance | Evolution | Training & Education |

Results

Once the required maturity level of the developed solutions and tools has been reached, Wapice intends to integrate it into own existing products and services (IoT-Ticket®, Summium® and EcoReaction®) and to use the knowledge gained form the project in future developments. This will directly benefit current and future partners.

IoT-TICKET®

IoT-TICKET® is a complete Internet of Things tool suite and platform, enabling digital services and improvement of operational performance.

SUMMIUM® CPQ

Summium® CPQ (Configure, Price, Quote) is a visual sales configurator which helps companies sell complex products and services.

SUMMIUM® Selector

Summium® Selector is an easy-to-use webshop solution for the demanding industrial needs. It enables requesting for quotations or maintenance and ordering products in a completely new way.

WAPICE ENERGYSERVICES

An intelligent and comprehensive energy service that acts as a 24/7 extension to your customer service. Consumption information available from any place, any time.

- Analytics, AI and Big Data
- Cloud Services
- Technology and Programming Solutions
- Internet of Things Services
- Consulting
- Cyber Security
- DevOps
- Electronics Design and Embedded Systems
- Web and Mobile Solutions
- Service Design

Partner Data

Wapice

Founded in 1999, Wapice is a Finnish full-service software company whose solutions are used by domain leading industrial partners around the world. As a digitalization forerunner, Wapice offers close technology partnership and digital services to its customers aiming at making the best use of current and upcoming digitalization opportunities. Believing in succeeding together, Wapice enhances its customer's business and success by bringing them to the forefront of digitalization.

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