IMPLEMENTATION OF A MICROSERVICE-BASED CERTIFICATION PLATFORM
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Horizon 2020 interconnect Project

- Funded by the European Union through Horizon2020
- 35 Mio. € budget
- 50 associated partner from 11 countries
- Energy sector / Smart Grid / Power management

Goals[1]:
- Interoperability through technology providers
- Full integration of energy systems (Smart Grid)
  - Such as car loading columns, transformers, energy provider, etc.
- A new communication protocol for interoperable energy systems for multiple vendors

Our part:
- Ensure the interoperability
  - Is the car charging column compatible?
  - How it become “Interconn-Ready”

The answer:
- With an agile certification service which is integrated in my development pipeline
Motivation

Tim

(Software Developer)

Realtime Monitoring & Control

Source Reference: Pixabay, Pixabay Lizenz
Motivation

Realtime Monitoring & Control

Vendor A

Vendor B

Vendor C

Tim

(Software Developer)
Interoperability
Motivation

Realtime Monitoring & Control

SAREF

Tim
(Software Developer)
Motivation

SAREF e.g. 3.1 compatible

Realtime Monitoring & Control

SAREF

SAREF

SAREF

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(Software Developer)
Motivation

Realtime Monitoring & Control

SAREF e.g. 3.1 compatible

SAREF 3.1

Tim (Software Developer)

SAREF 3.1

SAREF 3.1

SAREF 3.1

?
Motivation

Realtime Monitoring & Control

SAREF e.g. 3.1 compatible

SAREF 3.1
SAREF 3.1
SAREF 3.1

e.g. SAREF 4.0

Tim (Software Developer)
We need a new signal / property in the interface

Proposal for new property
Motivation

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Proposal for new property

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Proposal for change properties
Motivation

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Next version of the Standard

Proposal for change properties
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We need a new signal / property in the interface

Proposal for new property

Next version of the Standard

Proposal for change properties

New Version

2 Years later
How do we get faster (more agile) to our certificate?
„If it hurts do it more often“
Smaller increments in standardization

Proposal for new property

Next version of the Standard

Proposal for change properties

2 Years later
Leads to more certification

Proposal for new property

Next version of the Standard

Proposal for change properties

2 Years later
Agile Standardization

Implementation Certification Service

CI / CD - Pipeline

Compile ➔ Test ➔ Assemble (Docker) ➔ Certify ➔ Deploy
Compile → Test → Assemble (Docker) → Certify → Deploy

CI / CD - Pipeline

Tims Company

Certification Body
Implementation Certification Service

CI / CD - Pipeline

Compile → Test → Assemble (Docker) → Certify → Deploy

Tims Company

Certification Body

Certification Service

Test | Runner | Certification | User Man. | Billing

Source: https://commons.wikimedia.org/wiki/File:Docker_(container_engine)_logo.png, Apache 2 Licence
Implementation Certification Service

CI / CD - Pipeline

Compile  Test  Assemble (Docker)  Certify  Deploy

Tims Company

Certification Body

Certification Service

Source: https://commons.wikimedia.org/wiki/File:Docker_(container_engine)_logo.png, Apache 2 Licence
Certification Plattform

Technology Stack:
- REST – API
- Angular UI
- NestJS Backends
- Kubernetes Orchestration (Rancher)

Guaranteed high standards of quality through: 
- Certification UI
- User Management
- Billing

- GIT (Test Repo)
- Docker Registry (Artifact Repo)
- Apache Kafka (Event Broker)
Implementation Certification Plattform

Certification Plattform

Certification UI

Certification Step

Docker trust sign

Apache Kafka (Event Broker)

Technology Stack:
- REST – API
- Angular UI
- NestJS Backends
- Kubernetes Orchestration (Rancher)

Certification
- Docker Trust Sign
Summary:

- Standard adaptions & new certifications faster ➔ More agile
- Implementation of certification platform basically works ➔ Test with SAREF not completed yet
- Many interest of software developers in the project ➔ But project was still originally planned with classical standardization cycles

Next Steps:

- Certification Platform for the interconnect Project
- Evaluation of agile certification with several software products
- Also use agile standardization in further contexts
Thank you for your attention

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