Launch of the open source Arrowhead Framework
Arrowhead
Process and energy system automation

4 years project
68M€
78 partners
Coordinated by

an ARTEMIS CoIE

www.arrowhead.eu - jerker.delsing@ltu.se
ISA-95 systems in to the cloud?
Arrowhead Grand challenges

- Enabling the interoperability of services provided by almost any device.

- Enabling the integrability of services provided by almost any device.
The global cloud approach

A Survey of Commercial Frameworks for the Internet of Things. Hasan Derhamy, Jens Eliasson, Jerker Delsing, and Peter Priller, SOCNE workshop at ETFA 2015, Luxemburg
Collaborative automation in the cloud

- Automation is local - requirements on:
  - Real time
  - Security and safety
  - Continuous engineering

- Local clouds are beneficial to:
  - Latency - real time
  - Security - supporting safety
  - Less engineering dependencies

- Inter cloud actions are necessary and possibly secure!
System-of-Systems in a local cloud

ARROWHEAD FRAMEWORK
LOCAL CLOUD

Application system
Application system
Application system
Application system
Application system
Application system
Application system

Core systems
Service Registry
Authorisation
Orchestration

www.arrowhead.eu
Real time local cloud automation & inter cloud automation
Launch of the open source Arrowhead Framework
Arrowhead Framework wiki
You will most likely find inconsistencies here and there. Please correct if possible. If not please create a ticket so it can be addressed.

**Why & How**

- Objectives
- Strategy

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<th>Core systems &amp; services</th>
<th>Technical architecture</th>
<th>How to implement</th>
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- Compliance criteria
- Test tool
- Interoperability matrix
Arrowhead Framework evaluation
21 automation demos
within
5 application domains
Interesting results

Engineering time reduction with a factor of 4-5
Arrowhead Vision

Enable collaborative automation by networked embedded devices.
Arrowhead_Framework_Wiki

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