

Launch of the open source Arrowhead Framework

Arrowhead

Process and energy system automation

4 years project

68M€

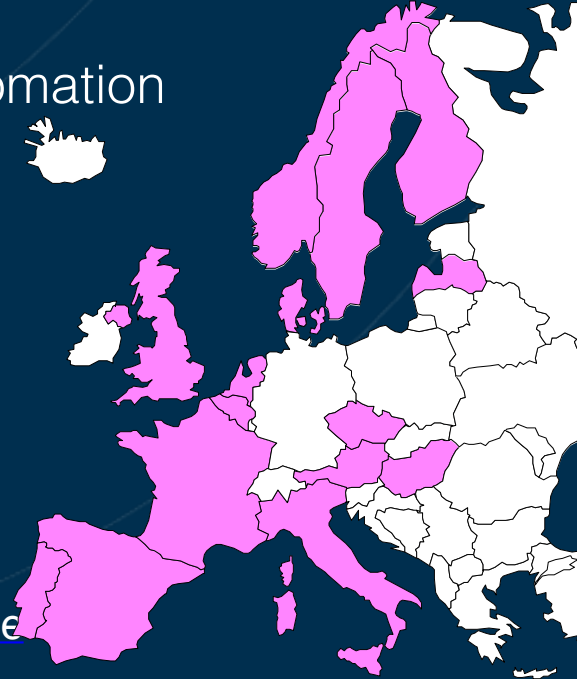
78 partners

Coordinated by

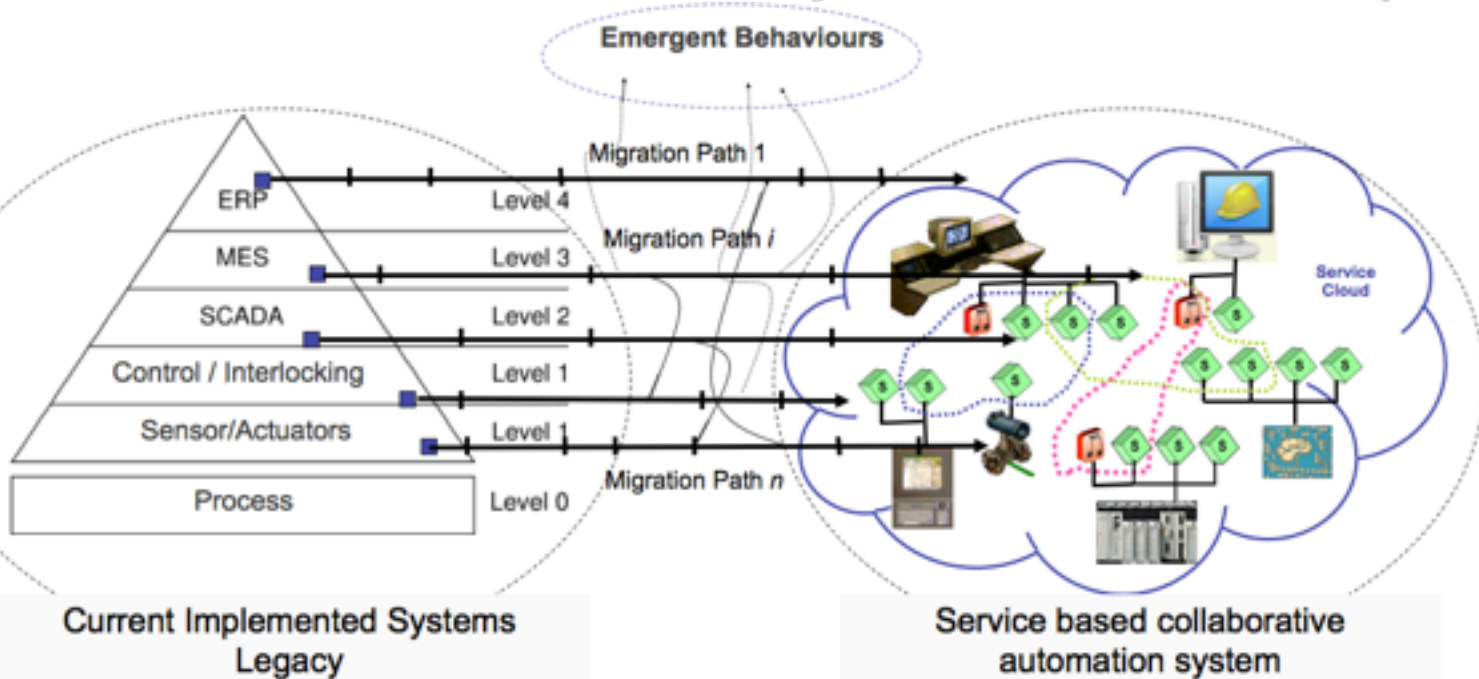


an ARTEMIS CoIE

www.arrowhead.eu - jerker.delsing@ltu.se



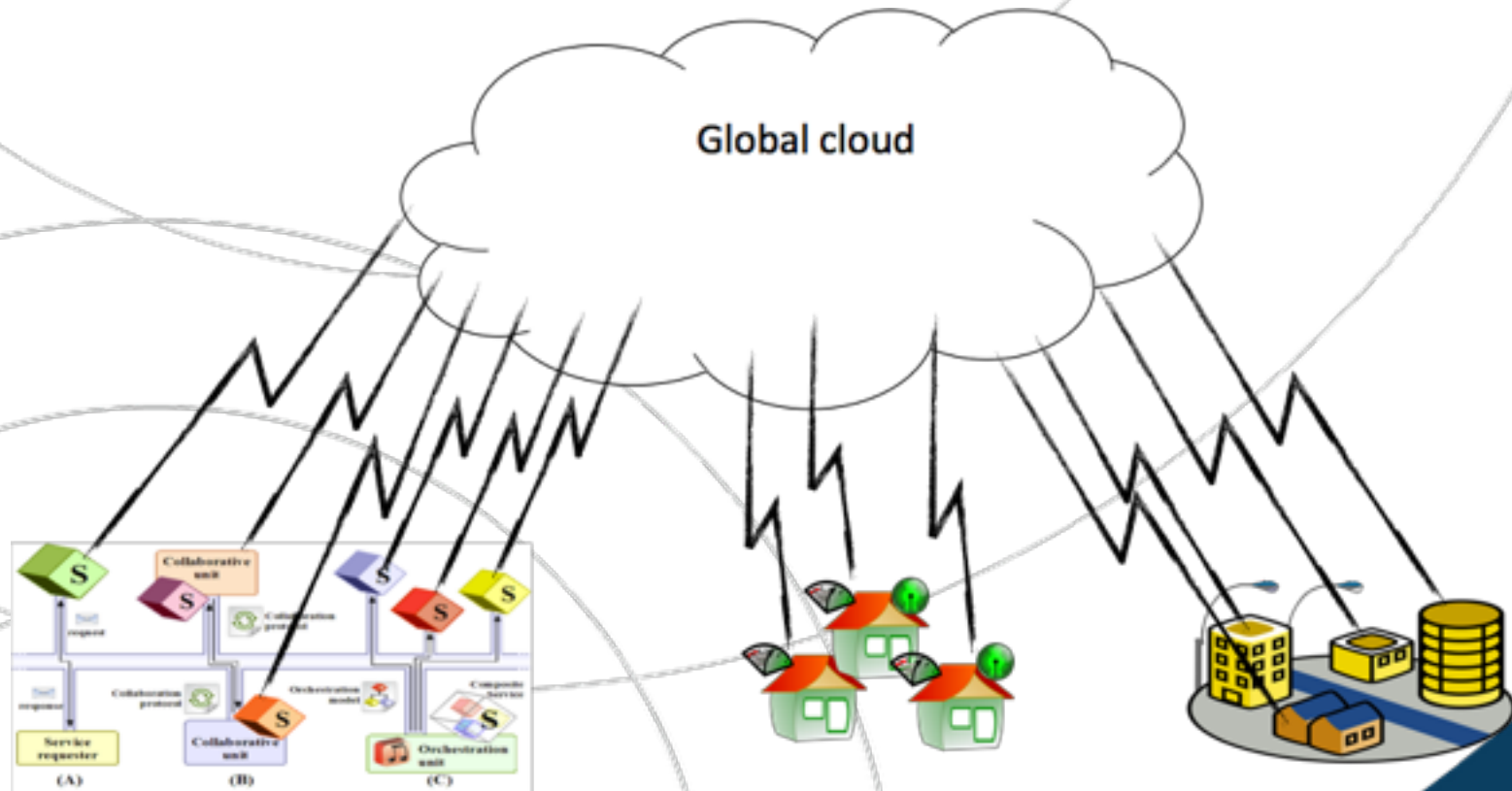
ISA-95 systems in to the cloud?



Arrowhead Grand challenges

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

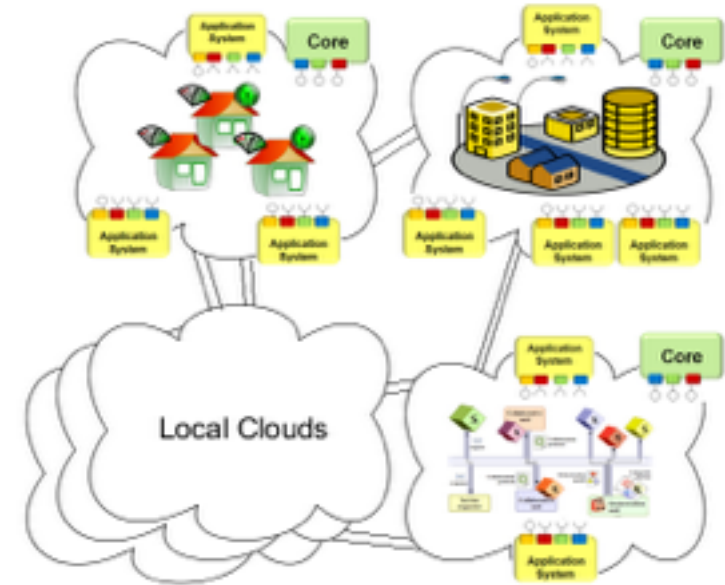
The global cloud approach



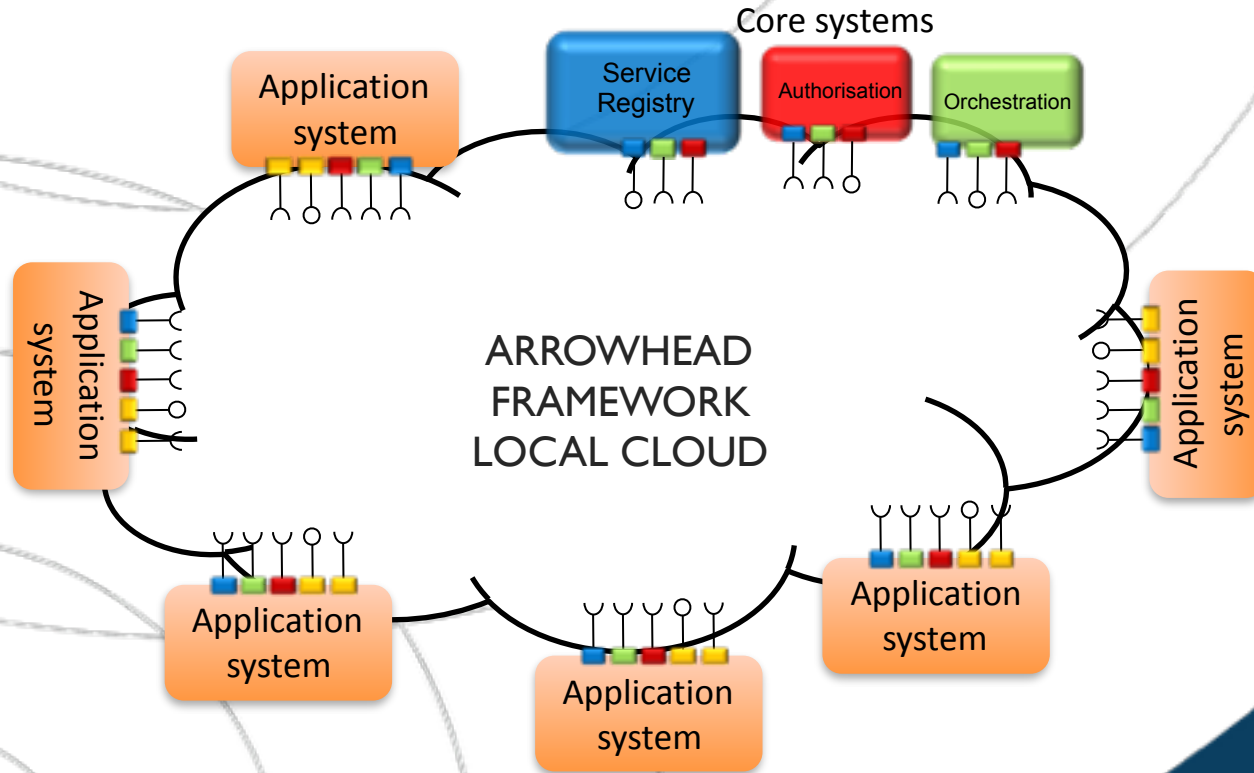
A Survey of Commercial Frameworks for the Internet of Things. Hasan Derhamy, Jens Eliasson, Jerker Delsing, and Peter Priller, SOCNE workshop at ETFA 2015, Luxemburg

Collaborative automation in the cloud

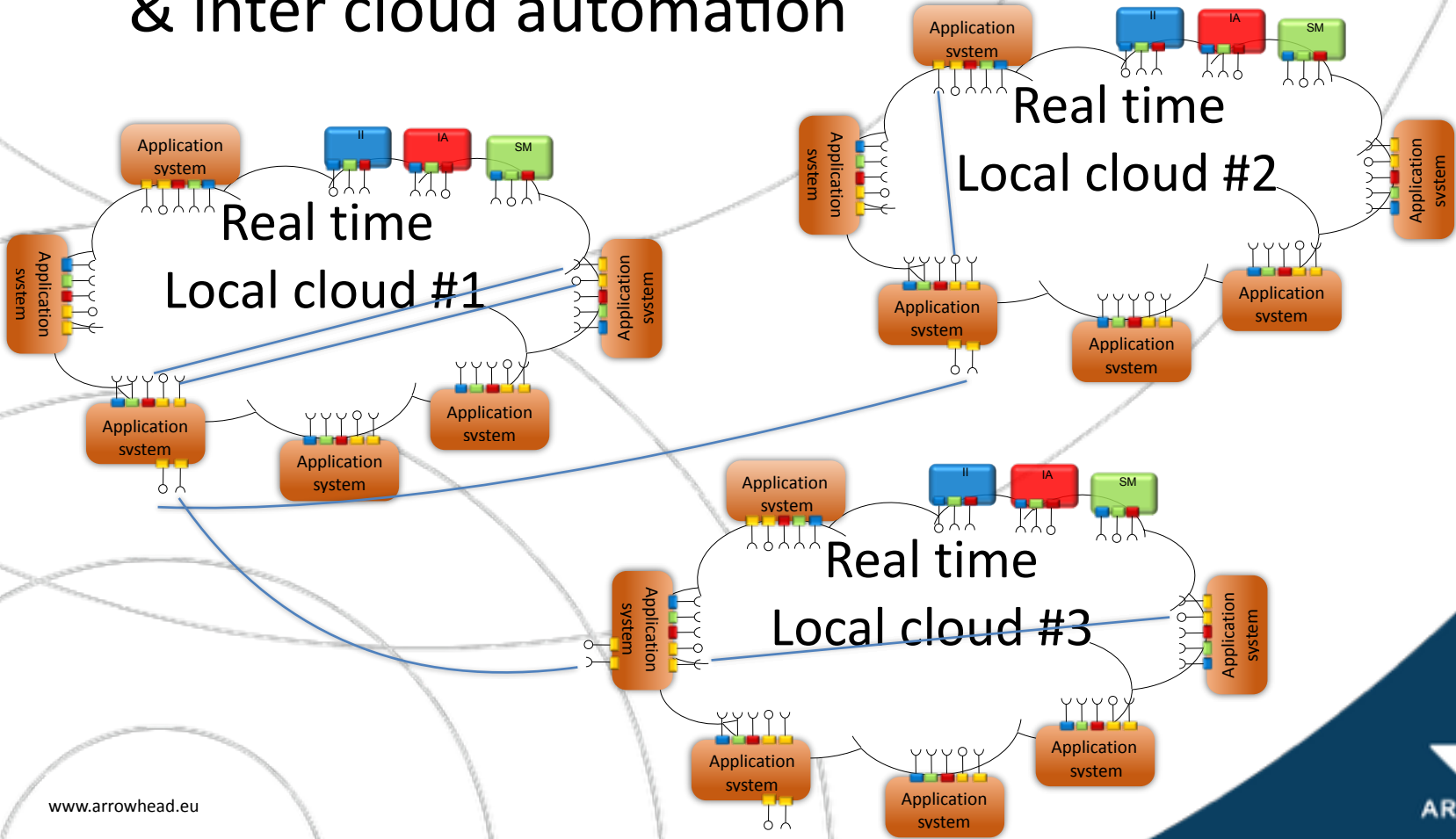
- Automation is local - requirements on:
 - Real time
 - Security and safety
 - Continuous engineering
- Local clouds are beneficial to:
 - Latency - real time
 - Security - supporting safety
 - Less engineering dependencies
- Inter cloud actions are necessary and possibly secure!



System-of-Systems in a local cloud



Real time local cloud automation & inter cloud automation



Launch of the open source Arrowhead Framework

[Arrowhead Framework wiki](#)

forge.soa4d.org

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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

Core systems & services	Technical architecture	How to implement
<ul style="list-style-type: none"> Mandatory core systems and services Support core systems and services Core system prototypes Online deployed clouds Local deployment guidance 		<ul style="list-style-type: none"> Java library API for Core services usage Application system example - Using the Core system via the Java library and example application services Application system examples Design documentation and code
Application services	Technical documentation model	Do I comply?
<ul style="list-style-type: none"> Service specifications 		<ul style="list-style-type: none"> Compliance criteria Test tool Interoperability matrix

www.s

ARROWHEAD

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.

http://forge.soa4d.org/plugins/mediawiki/wiki/arrowhead-f/index.php/Arrowhead_Framework_Wiki

Jerker Delsing

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