

New Approaches for Infrastructure Services

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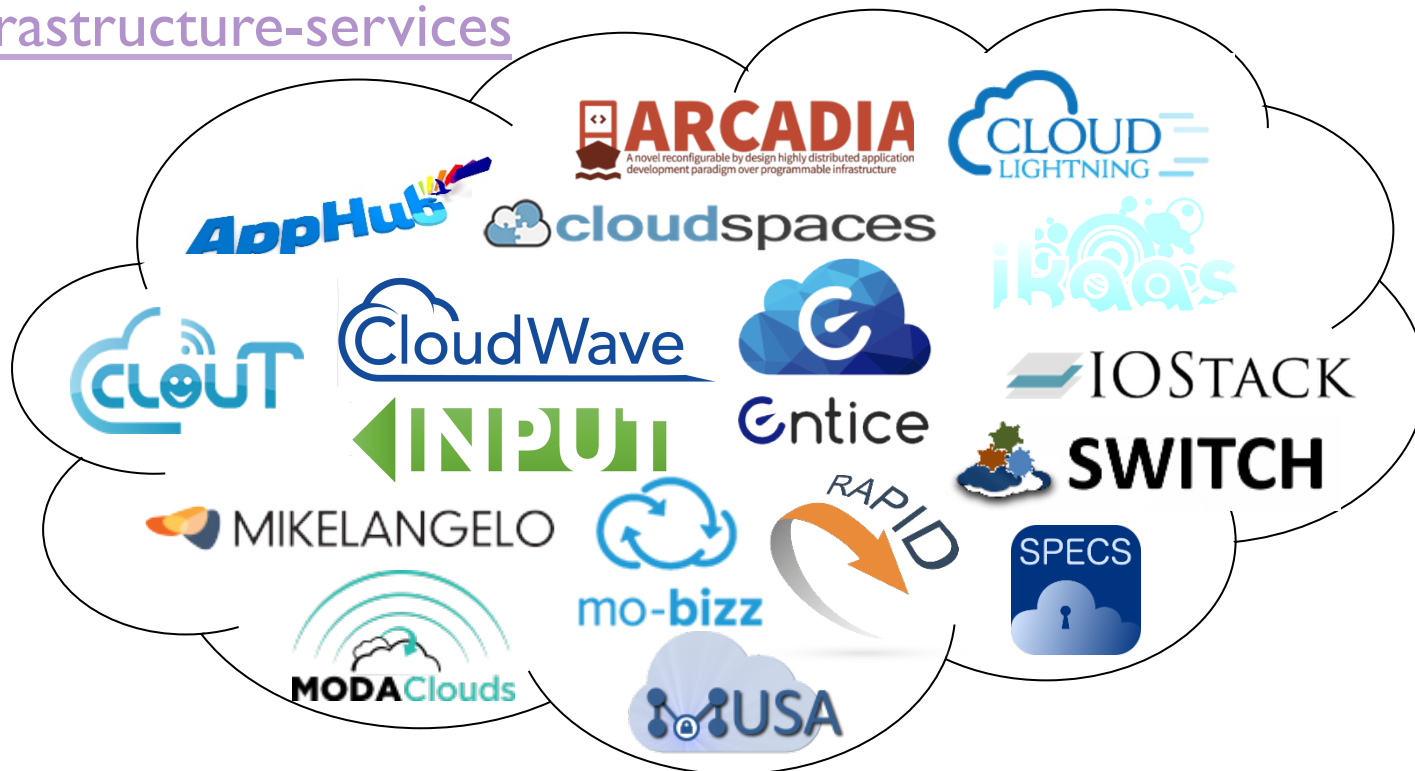
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Cluster membership

- ▶ Started in June 2015

- ▶ Web site:

<https://eucloudclusters.wordpress.com/new-approaches-for-infrastructure-services>



Achievements until current date

- ▶ Joint dissemination:
 - ▶ **MICAS 2015**, 21-22 Sept 2015
 - ▶ 1 project tutorial
 - ▶ 6 project presentations
- ▶ Public and joint dissemination material:
 - ▶ **Map of challenges, Oct 4th 2015**
 - ▶ identifies the common topics of interest, tools, common development directions, used standards.
 - ▶ essential to identify the key subjects for collaborations and take-ups between the projects and actions
- ▶ Incoming:
 - ▶ **White paper, 31 Dec 2015**
 - ▶ **Special issue for the R&D results of the cluster activities**
 - ▶ CFP for SCPE, open access journal (joint publications?), 31 Mar 2016

Agenda

1. Present the Map of Challenges
 - ▶ Overview of the deliverable
 - ▶ Updates from the projects (project presentations)
2. Discussions about the requirements and ToC of the white paper
3. ~~Update on the dissemination actions — joint actions?~~
4. Contribution to policy aspects
5. Research challenges to be identified for WPI8
6. ~~Exploitation intentions — experience exchange~~
7. Standardization intentions - a common plan?

Map of challenges

- ▶ identifies
 - ▶ the common topics of interest,
 - ▶ the common tools,
 - ▶ the common development directions,
 - ▶ the commonly used standards.
- ▶ essential to identify
 - ▶ the key subjects for collaborations and
 - ▶ take-ups between the projects and actions
- ▶ relative to WPI 6-17

Map of challenges (1/4)

4.1 Research point of view

The following table identifies which cluster initiative is working on topics identified in H2020-LEIT-ICT-2016-6.

Research subjects as in WP 2016-2017 ⁶	AppHub	ARCADIA	CloudLightning	ClouT	ENTICE	iKaaS	INPUT	Mikelangelo	Mo-Bizz	MODAClouds	MUSA	RAPID	SPECS	SWITCH
Development of distributed, federated and heterogeneous cloud computing model		X	X			X			X		X	X		X
Deployment and management of resources: in a decentralised, autonomous way		X	X	X	X	X	X			X	X	X	X	X
Extension of extreme edge of the network							X							X
Software defined networking,		X			X		X							X
Software defined data center							X						X	
Data storage infrastructures				X	X									
Security, privacy						X					X	X	X	

Map of challenges (2/4)

4.2 Examples of contributions

The following table identifies what the cluster initiatives are doing in relationship with the topics identified in H2020-LEIT-ICT-2016-6.

Topics	What the clustered projects are doing
Development of distributed, federated and heterogeneous cloud computing model	<p>iKaaS is developing a hierarchical cloud computing model formed from a Global Cloud (legacy cloud computing) and Local Clouds (formed on demand).</p> <p>MUSA aims at offering solutions to develop multicloud applications granting security requirements</p> <p>RAPID aims to develop an efficient CPU-GPU heterogeneous multi-tier infrastructure. The offloading framework aims to support application offloading from Android, Linux, and Windows devices.</p> <p>ARCADIA is to provide for the deployment of Highly Distributed Applications in multi-IaaS environments.</p>
Deployment and management of resources: in a decentralised, autonomous way	<p>Improving the efficiency of deployed resources/Deploying of resources efficiently - use of low overhead, very efficient virtual technology stack.</p> <p>iKaaS is developing distributed autonomic resource (cloud, IoT) allocation mechanisms, taking into account service needs and resource capabilities and availability.</p> <p>The Dynamic Real-time Infrastructure Planner (DRIP) subsystem in SWITCH prepares the</p>

Map of challenges (3/4)

4.4 Software tools and standards used within the projects

The following table identifies the categories of technologies and standards that are used by the cluster initiatives.

Software tools and standards used ⁷	AppHub	ARCADIA	CloudLightning	ClouT	ENTICE	iKaaS	INPUT	MIKEL ANGELO	Mo-Bizz	MODAClouds	MUSA	RAPID	SPECS	SWITCH
<i>Tools</i>														
Docker		X			X	X					X			X
CloudFoundry										X				
VMWare	X				X									X
XEN	X				X									
KVM	X	X			X		X	X				X		X
OpenStack	X	X	X	X	X	X	X	X		X	X	X	X	X

Map of challenges (4/4)

	ApptHub	ARCADIA	CloudLightning	ClouT	ENTICE	iKaaS	INPUT	MIKELANGELO	Mo-Bizz	MODAClouds	MUSA	RAPID	SPECS	SWITCH
<i>Exploitation model</i>														
Open Source	X	X	X	X	X	X	X	X		X	X	X	X	X
Commercial	X	X	X			X	X	X		X	X	X		X
Patents		X		X		X	X							
Supported licenses (if open source)		Apache, GPL, BSD	Apache	Apache			BSD	Apache, GPL, BSD		Apache, GPL		Apache, LGPL	Apache, GPL	Apache
Maintains a community that uses its software and contributes to its development (if open source)								X		X		X	X	X
Supported open standards		X	X	X	X		X			X	X		X	X

White paper (31 Dec 2015)

- ▶ Scope
 - ▶ Infrastructure services, on deployment levels (aprox. PaaS, IaaS)
- ▶ Challenges
 - ▶ Technological challenges
 - ▶ Timeline
 - ▶ Effects to other areas
- ▶ SoTA
 - ▶ as output of the prjs
 - ▶ Relative to WPI6
 - ▶ Technologies will be developed
 - ▶ Impact on the market, services that will be provided
 - ▶ Sustainability, business models?
- ▶ Gap analysis
 - ▶ Relative to WPI6
 - ▶ Future challenges