

*Cluster of Cloud
related actions*

**Novel approaches
and technologies for
Cloud resource and
service management**



Recommendations for WP18-20

eucloudclusters.wordpress.com/new-approaches-for-infrastructure-services

Cluster membership



- ▶ Started in June 2015
- ▶ 20 actions/projects from H2020-ICT/FP7-ICT/CIP-ICT



Cluster Objective



Forum

for discussing

the current research **and innovation challenges**

encountered at **infrastructure-as-a-service level**

and generated by the desire

to improve

the user experiences

and the efficient use of the available resources

Goals



1. define a **map of the challenges**
 - ▶ related to the group topics that have been/are tackled by the projects and of the solution approaches that have been/are taken
2. identify **complementarities and synergies**
 - ▶ as well as possibilities for collaboration/results adoptions between projects, including common standardization bodies to be in contact with
3. **identify new challenges**
 - ▶ to influence the new research agendas by providing recommendations
4. organisation of **common dissemination actions** like
 - ▶ common publications (books, articles, white papers, newsletters) using the maps defined above and describing the current projects and the challenges for future research
 - ▶ trainings and workshops

Achievements until current date



Public documents:

Documents:

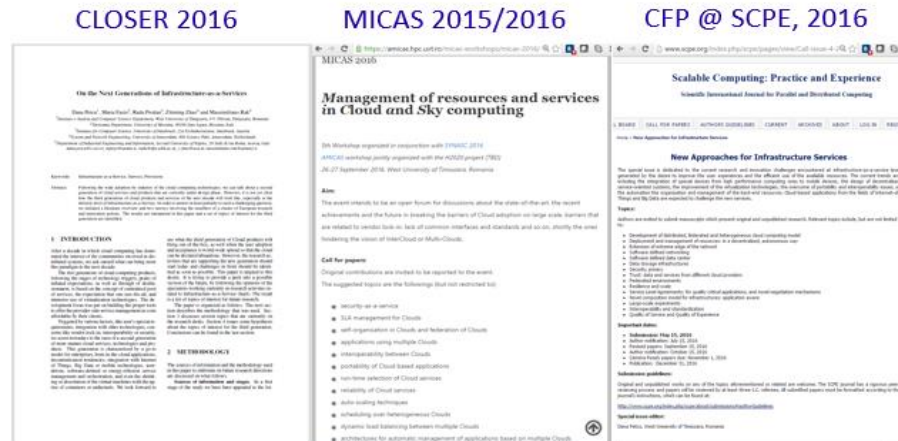
- ▶ Map of challenges, Oct 4, 2015
- ▶ **Recommendations for WP18-19, Dec 24, 2015, based on a questionnaire (Nov 2015)**
- ▶ White paper, Apr 15, 2016



Joint dissemination:

- ▶ MICAS 2015, 21 Sept 2015, 1 tutorial, 6 action presentations
- ▶ Booth at NetFuture 2016, 20 Apr 2016
- ▶ Paper at Closer 2016, 24 Apr 2016
- ▶ Special Issue of SCPE Journal, 15 October 2016

Dissemination:



Rec. 1: Related to Cloud middleware



Support the Cloud **evolution towards its omnipresence**

- ▶ *freeing of the Cloud service consuming software from the Cloud services, by ensuring that the new generation software, or existing modular or event-reactive ones, will be able*
 - ▶ to be described to an abstract level that is service agnostic,
 - ▶ to form automatic and transparent combinations of hardware and software resources according to its needs,
- ▶ *will be managed automatically*
 - ▶ resource provisioning, deployments, runtime migrations,
 - ▶ multi-tenancy with cost-effectiveness and data protection,
 - ▶ the recovery from minute-to- minute failures

Rec. 2: Related to Datacentre services



Support **the evolution of the software-defined datacentres as ecosystems**, *in which*

- ▶ services are abstracted from infrastructure,
- ▶ changes and updating are done automatically based on intelligent orchestration or new database tools,
- ▶ security is software-defined.

Such ecosystem should enable

- ▶ warehouse-scale computing using purpose-designed chips,
- ▶ new services like supercomputing on demand or
- ▶ massively federated, scalable software architecture with orchestration through network awareness.

Rec.3: Related to Cloud model evolution



Support

the evolution of the Cloud computing model towards the integration with machine-to-machine computing,
solving the challenges of separate technology stacks & dealing with

- ▶ limited memory, storage, computation capacity of edge devices,
- ▶ speed of deployment,
- ▶ resource distribution,
- ▶ cost-effective scalability,
- ▶ resilience,
- ▶ easiness of management or
- ▶ security

Rec. 4: Cloud service market orientation



Support

**the evolution of the Cloud services
towards diversification,**

ensuring special features like

- ▶ those sustaining user mobility,
- ▶ user as service provider,
- ▶ service composition,
- ▶ personal data service configurability, or
- ▶ speciality Cloud services

References



- ▶ **Cluster document (including rational and visions):**
 - ▶ <https://eucloudclusters.files.wordpress.com/2015/05/recommendations.pdf>
- ▶ **Position paper**
 - ▶ <http://dx.doi.org/10.5220/0005912503200326>
- ▶ **Questionnaire**
 - ▶ <https://eucloudclusters.files.wordpress.com/2015/05/cloudware-issues-in-2018-2019-form.pdf>
 - ▶ <https://eucloudclusters.files.wordpress.com/2015/05/cloud-middleware-issues-in-2018-2020-answers.pdf>