



MTA
SZTAKI

Hungarian Academy of Sciences
Institute for Computer Science and Control

Felhőtechnológiai kutatási irányok a H2020-ban

Kacsuk Péter

MTA SZTAKI

Kacsuk@sztaki.hu

- FP7 tapasztalatok:
 - SZTAKI: 45 projekt
 - PERL: 20 projekt (Ebből 6 projektet koordináltunk)
- H2020 tapasztalatok:
 - SZTAKI: 10 projekt
 - PERL: 3 projekt
 - 1 infrastruktúra (EGI kerében)
 - 2 ICT (100%-ban felhőtechnológia kutatása)



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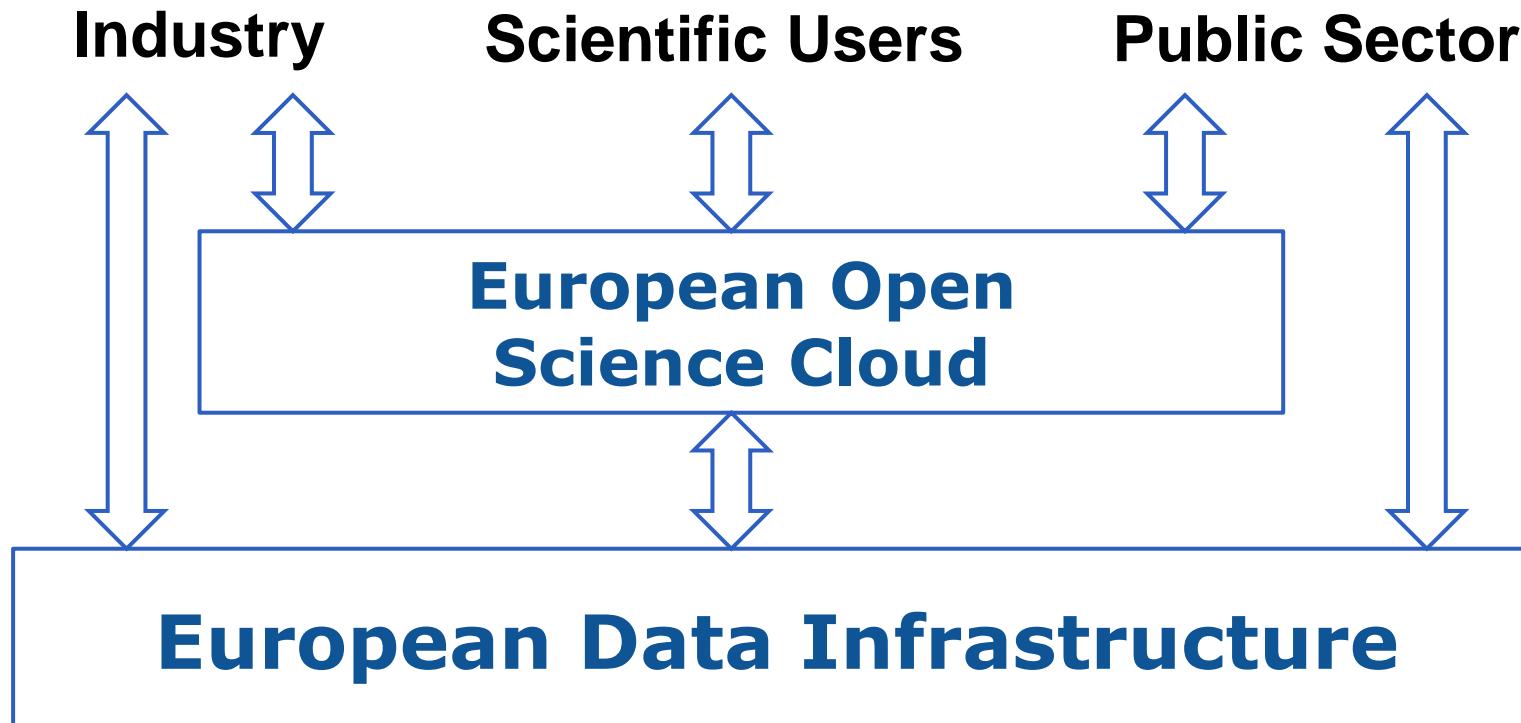
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Two major types of EC Calls

- Infrastructure related calls
- ICT research-oriented calls with intensive participation of companies



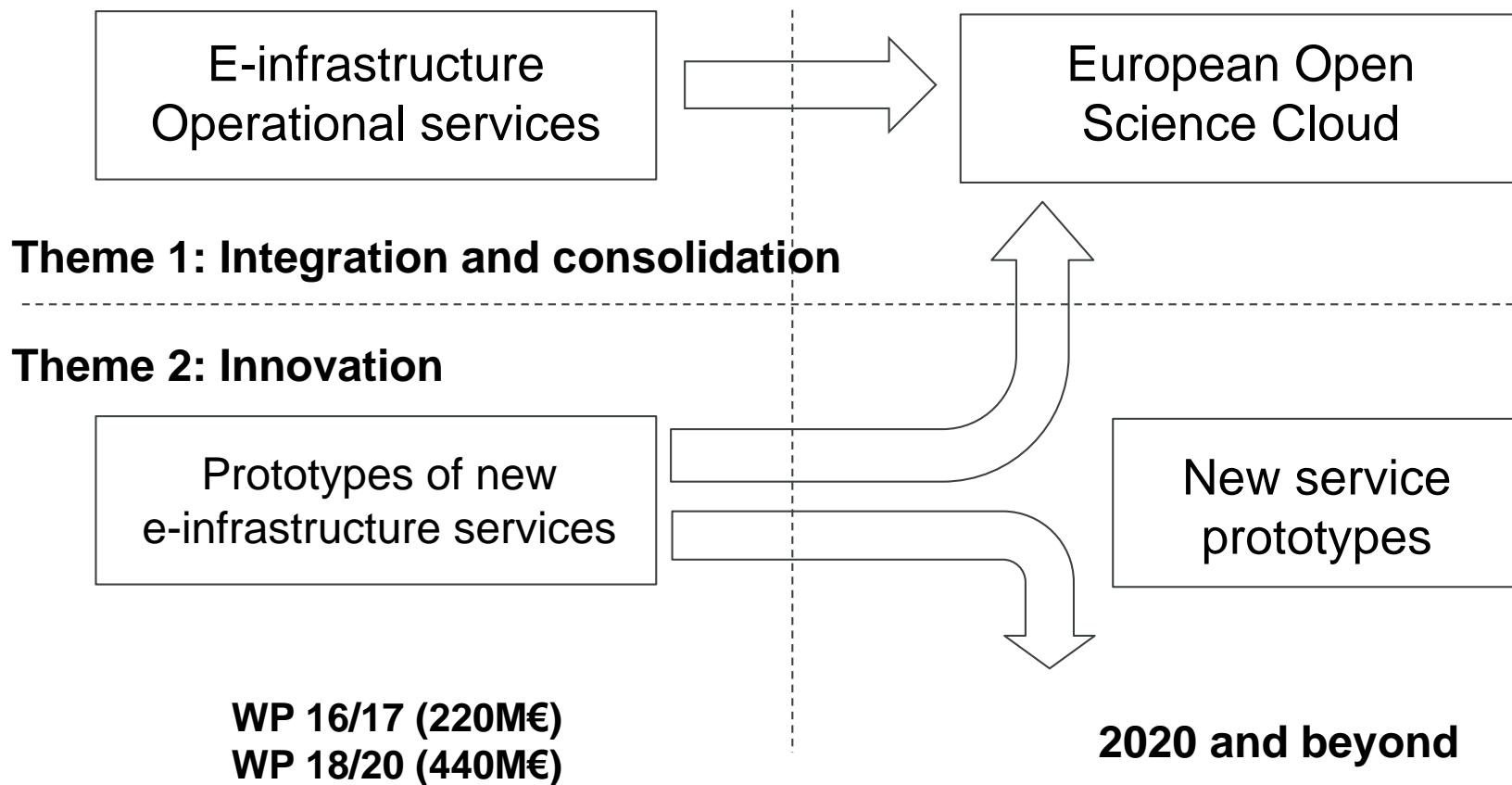
- European Open Science Cloud (EOSC)
 - Integration and consolidation of e-infrastructures
 - Federation of existing research infrastructures and scientific clouds
 - Development of cloud-based services for Open Science





Technology Readiness Levels

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental **proof of concept**
- TRL 4 – technology validated in **laboratory**
- TRL 5 – technology **validated in relevant environment** (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology **demonstrated in relevant environment** (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system **prototype demonstration** in operational environment
- TRL 8 – **system complete** and qualified
- TRL 9 – actual system **proven in operational environment** (competitive manufacturing in the case of key enabling technologies or in space)



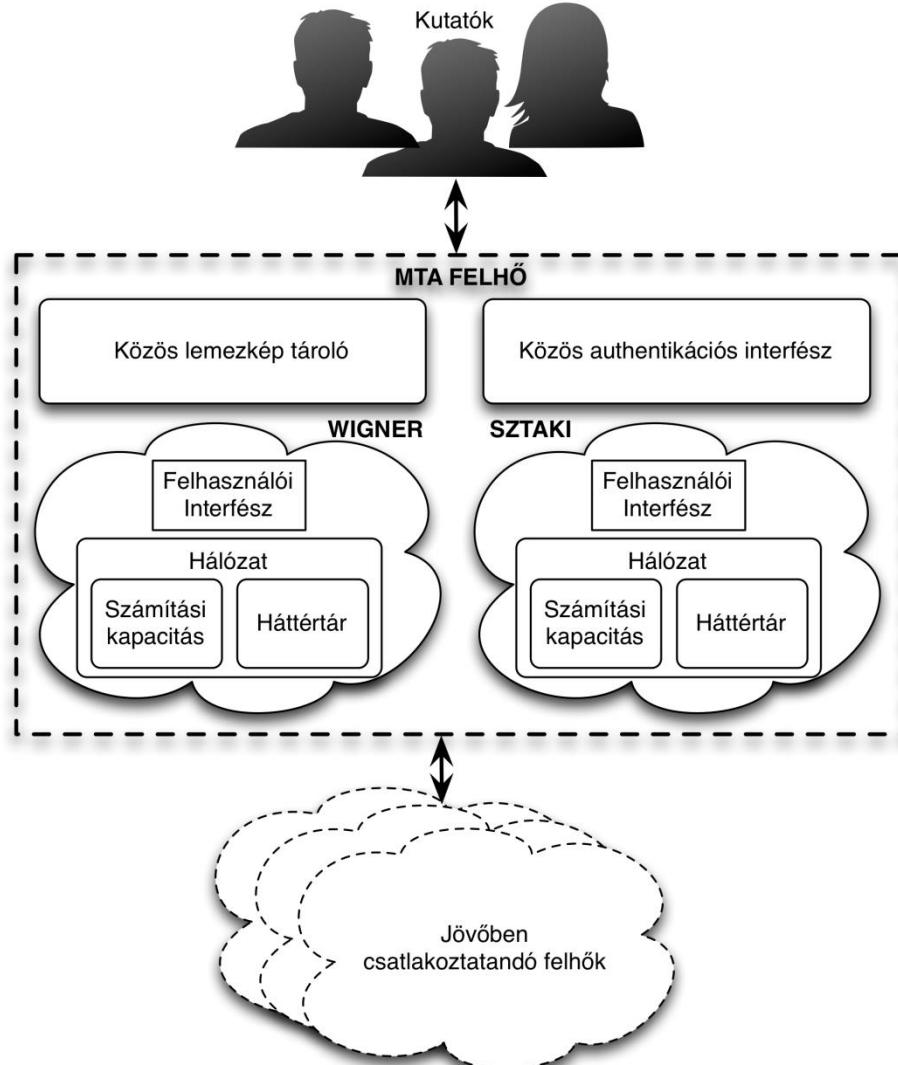


- 21 sites
- 28 VOs using FedCloud over the last 12 months
- 17 VOs in the previous period
- Activity starting from CCs: Elixir, MoBrain, LifeWatch, DARIOH
(SZTAKI/PERL involvement)

Training infrastructure

- 5 sites, +10 events run on the infrastructure
- 970 VMs over the last 12 months





- Teljes üzemre átadva: 2016. okt. 1.
- Méret:
 - SZTAKI:
 - 360 vCPU
 - 832 GB RAM
 - 164 TB HDD
 - Wigner:
 - 800 vCPU
 - 2.5 TB RAM
 - 400 TB HDD
- Jelenleg 12 projekt használja
- Web lap:
 - <https://cloud.mta.hu/>



ICT-06 Cloud Computing

a. Research and Innovation Actions

- Deployment and management of cloud infrastructures
- trust, security and privacy in decentralised cloud infrastructures
- to improve the management of physical resources and the efficiency of cloud systems

b. Innovation Actions

- **Experimentation** of cloud-based services and their deployment configurations in large-scale decentralised and federated environments
- **Cloud Computing for SMEs and Public Sector Innovation:** piloting and demonstration of new, flexible and resource-effective cloud solutions for SMEs and/or the public sector.



FP7 előzmények

- SCI-BUS (SCience gateway Based User Support)

- SZTAKI/PERL által kidolgozott WS-PGRADE/gUSE gateway keretrendszer adaptálása több mint 30 tudományos közösség és vállalat számára különös tekintettel a cloud rendszerek használatára (22 ezer letöltés 82 országból)
- Magyar résztvevők:
 - SZTAKI (koordinátor)
 - E-group
 - 4dSoft
- A SCI-BUS-ban kifejlesztett cloud integrálás lett a legnagyobb potenciálú ipari kutatási eredmény 500 EU projekt összehasonlítása alapján



Overall project objective:

- Build a simulation platform that allows seamless access to **multiple heterogeneous cloud resources** and provides a **high level of abstraction** to users when accessing these resources for simulations in a **one-stop-shop** solution.

Major Results:

- CloudSME landing page and integrated AppCenter are available as the **CloudSME one-stop-shop** to support simulation vendors and end-users at high level of abstraction.
- Behind the AppCenter is the CloudSME Simulation Platform consisting of the integrated CloudBroker Platform/**WS-PGRADE** solutions.
- Resources provided by **10 different** cloud (private and public) providers and HPC centres. (**SZTAKI Cloud** was one of them.)
- **Establishment of a new company called CloudSME UG** to commercialise the products of the project



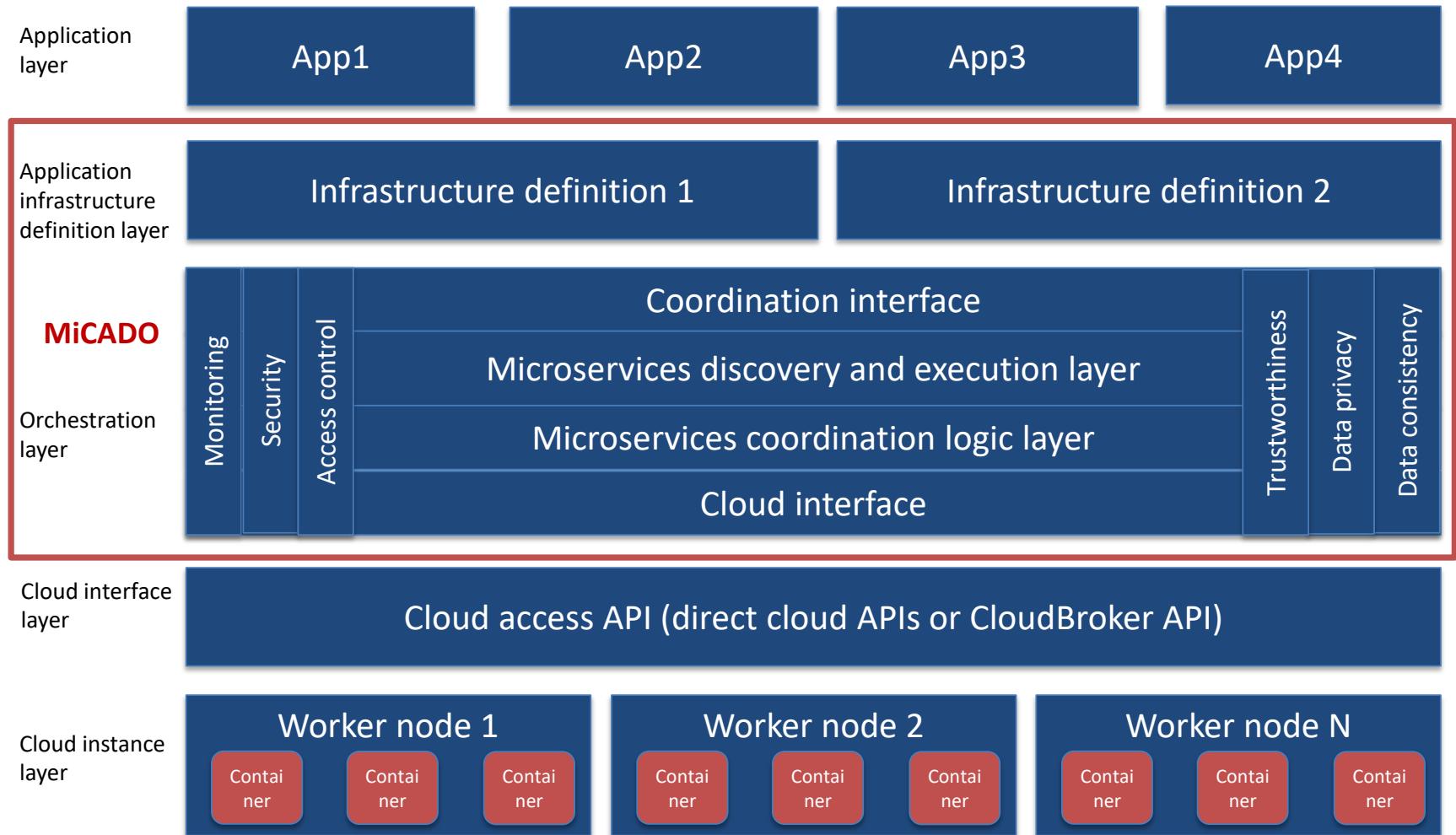
Accepted project

- Proposal Title Cloud Orchestration at the Level of Application
- Proposal Acronym COLA
- Funding Scheme Innovation Actions
- Project Duration 2.5 years (30 months)
- Work Programme ICT-06-2016
- Topic addressed
and Public Sector Innovation Cloud Computing – Cloud Computing for SMEs
- Starting date 1 Jan 2017



Proposed architecture

MiCADO: Microservice-based Cloud Application level Dynamic Orchestrator





COLA Consortium

1	The University of Westminster LBG (UoW)	UK
2	MTA SZTAKI (SZTAKI)	Hungary
3	CloudBroker GmbH (CB)	Switzerland
4	ScaleTools AG (ST)	Switzerland
5	SICS Swedish ICT AB (SICS)	Sweden
6	CloudSigma AG (CS)	Switzerland
7	BalaBit Europe Kft. (Balabit)	Hungary
8	Instrumentación y Componentes S.A. (Inycom)	Spain
9	Sociedad Aragonesa de Gestión Agroambiental SL (SARGA)	Spain
10	Now: Pensions Ltd (NOW)	United Kingdom
11	Brunel University London (UBRUN)	United Kingdom
12	Saker Solutions Limited (Saker)	United Kingdom
13	Outlandish LLP (Outlandish)	United Kingdom
14	CloudSME UG (CloudSME)	Germany



Összefoglalás

- A H2020 programban erősebb a verseny, mint az FP7-ben volt:
 - H2020 projektekbe nehezebb bekerülni
 - Több a pályázat, magasabbak az elfogadási pontszám határok
- Növeli az esélyt, ha sikeres FP7 projekt előzményt lehet felmutatni
- Érdemes nagy szervezetekhez kapcsolódni (EGI, PRACE, ESFRI projektek, stb.)
- Nem elég a magasszinvonalú kitartó munka, szerencse is kell, hogy az ember a megfelelő pillanatban a megfelelő helyen legyen
- Az esély fokozása érdekében gyakran kell résztvenni nemzetközi rendezvényeken és konferenciákon