



Instituto de Telecomunicações (IT) is a private, not-for-profit organization, of public interest, a partnership of nine institutions with research and development in the field of Telecommunications

**3 sites:**

**-Aveiro, in the University Campus**

- Coimbra, at Site II of the University of Coimbra
- Lisbon, at Instituto Superior Técnico

4 branches:

- Porto, at the Faculty of Engineering and Faculty of Sciences of the University of Porto
- Covilhã, at the University of Beira Interior
- Leiria, at the Leiria Polytechnic
- Lisbon, at ISCTE-Instituto Universitário de Lisboa

The expertise in IT, from which follow its main research and education activities, spans the following areas:

- Wireless Communications
- Optical Communications
- Networks and Multimedia
- Basic Sciences and Enabling Technologies

# ENGAGE SKA

PORTUGAL

Enable Green E-Sciences for the Square Kilometre Array

Portuguese collaboration of academic and industrial institutions in the TICE, Energy and Space sectors.

## Partners



## Associate Partners



## Collaborators





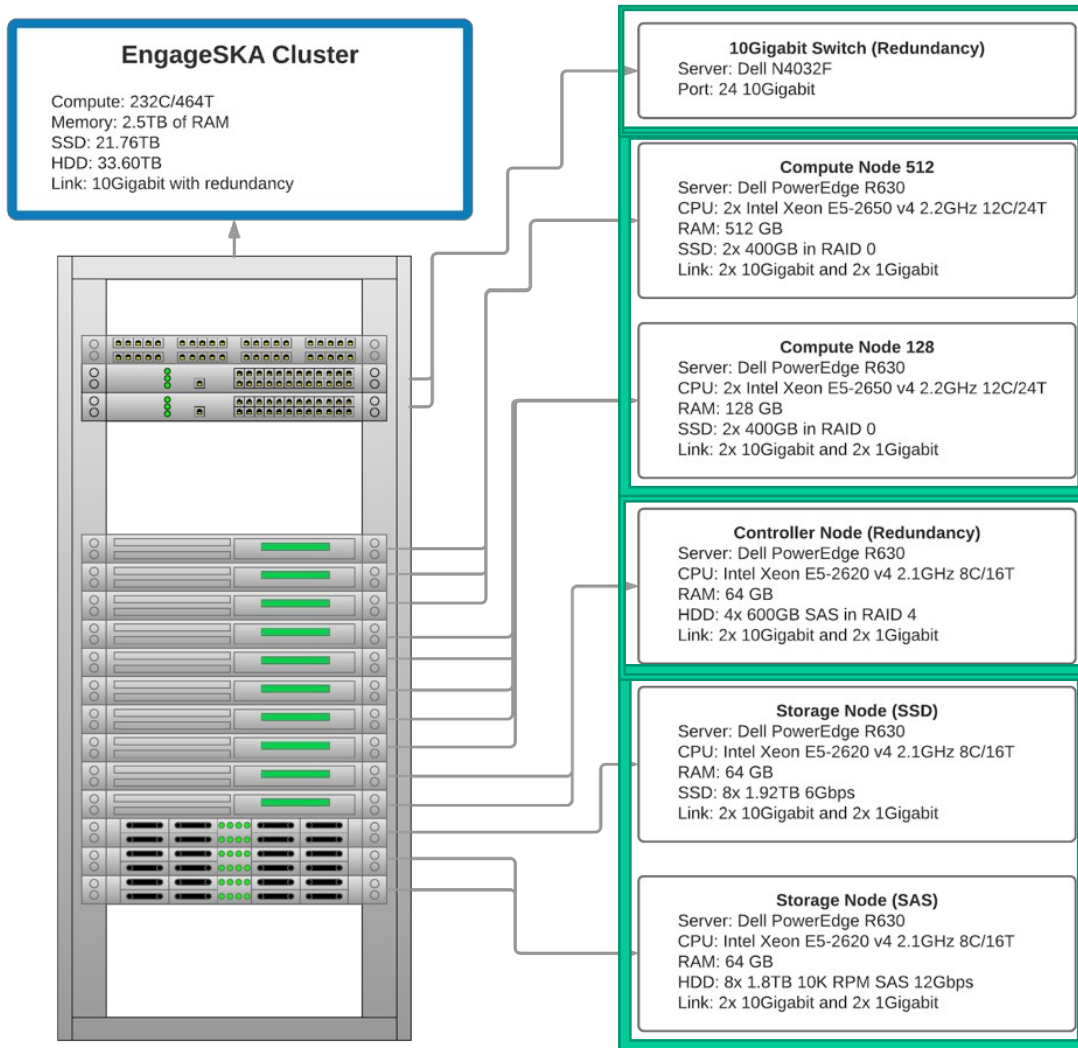
## **Team Membres:**

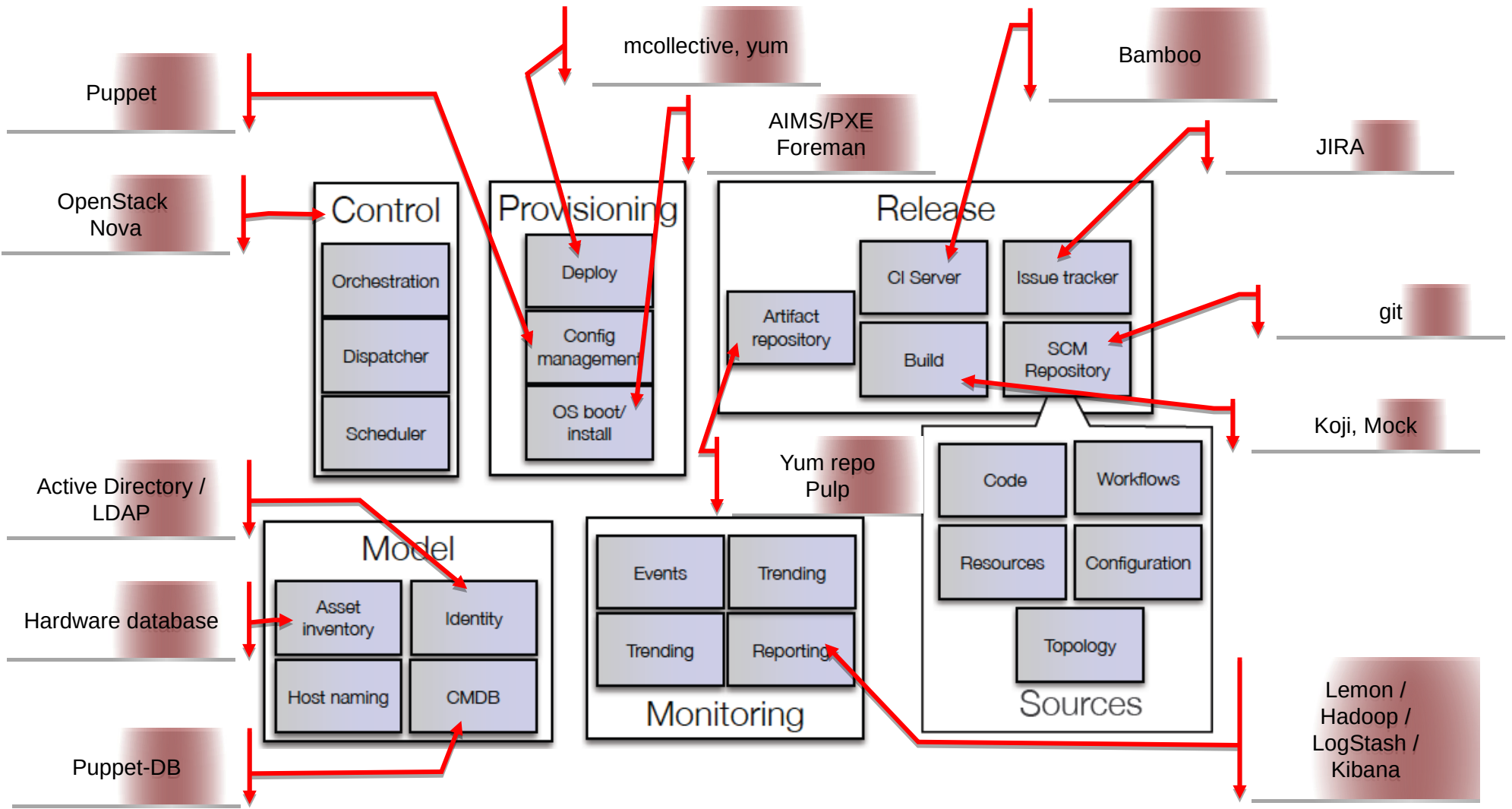
Dzianis Bartashevich  
Domingos Barbosa  
João Paulo Barraca  
Miguel Bergano  
Bruno Morgado  
Bruno Coelho  
Helder Ribeiro  
Dalmiro Maia

# *Computational Resources*

- **Shared resources:**
  - Under commissioning: +300 TFLOPS (mixed), 1.5PB storage (50%)
- **Dedicated resources:**
  - 232 Cores, 2.5TB RAM, +50TB shared storage

- *Prototype of Cloud Infrastructure Aligned with ALASKA – SDP SYSTEM*





# *Current Tasks*

- SKA System Team Scrum master and major drive: implementing an automated pipeline capable of testing, extracting metrics and building software products from source code.
- Developing enhanced orchestration templates for Openstack Heat Stacks supporting SLAs
- Hosting repositories and CI platform for SKA System Team



# *Expertise in Federation and Pilots*

- IT hosted testbeds for large size EU projects related with the integration of SDN/virtual components
- Extensive work (~15 years) related to orchestration, SDN, ICN, QoS, ML, Security, service architectures, cloud and virtualization under the scope of future internet and 5G
- Strong collaboration with Telco players developing new solutions and PoCs related with SDN and integration of many DCs, in core and access networks.

# SKA Science Data Challenge #1



## ENGAGE SKA Portugal

Bruno Coelho (IT); Domingo Barbosa (IT); Sonia Antón (CIDMA, Dep Física-UA); Jorge B. Morgado (FCUP); Valério Ribeiro (CIDMA, Dep Física-UA, IT); Dzianis Bartashevich (IT); João Paulo Barraca (IT); Miguel Bergano (IT); Dalmiro Maia (FCUP)



## SDC1 Leaderboard

Ox-ICRAR  
UK / Australia

ICRAR  
Australia

EngageSKA  
Portugal

ARCIt-CACAO  
Italy

hs  
Germany

IITK  
India

IPM  
Iran

JLRAT  
China

Shanghai  
China

**SKA**  
SQUARE KILOMETRE ARRAY

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### International Teams Complete SKA's First Science Data Challenge

SKA Global Headquarters, 15 July 2019 – Astronomers and software specialists from all over the world have completed the SKA's first Science Data Challenge, showcasing the community's enthusiasm to prepare for the SKA's complex and large data volumes.

Nine teams representing 12 institutions in 8 countries took part in the challenge. They were invited to analyse a series of high resolution images of the radio sky created through data simulations, and use software of their choosing to find, identify and classify the sources.

The images show how the SKA's mid-frequency array, to be located in South Africa, would see the radio sky at three different frequencies (560 MHz, 1.4 GHz and 9.2 GHz), over three different exposure times: eight hours, 100 hours and 1000 hours. Each of the nine images filled 4GBytes (or 1074 MegaPixels).

Crédits: SKA Organisation

# Science:



**João Paulo Barraca:** Prof. Univ. Aveiro.

Developed solutions related with integration of virtual-physical resources, orchestration over multiple clouds, SDN, and Access Control (IdM, ABAC, RBAC).

Interests related with SDN, Cloud unification and Security.

**Sonia Antón:**

SKA SWG – Extragalactic Continuum (Galaxies/AGN, Galaxy Clusters)  
Galaxy evolution and AGN; radio-loud NLS1; SKA-VLBI: chasing merged and merging SMBH.

**Bruno Coelho:**

SKA SWG – Extragalactic Continuum (Galaxies/AGN, Galaxy Clusters); AENEAS  
Galaxy evolution and AGN: Quasars, host galaxies; source classification (multi-wavelength cross-ID)

**Valério Ribeiro:**

ThunderKAT- The HUNt for Dynamic and Explosive Radio transients with meerKAT  
Novae and explosive transients

THANK YOU!