Astronomy ESFRI & Research Infrastructure Cluster
(in response to INFRADEV-4-2014/2015 call)
Serving ESFRI projects in Astronomy and Astroparticle Physics:
SKA, CTA, KM3NeT, close links to E-ELT, EGO, EUCLID, LSST.

Towards the end of the decade:

- new perspectives in Astronomy and new very large infrastructures in preparation.
- the projects passed from the noise hunting regime to the generation of large sets of data. Data production needs large computing resources, intensive simulation and large storage space.
- multi-messengers data need formats, software and services for wide open accessibility, interoperability, processing and effective mining.
Some ASTERICS scopes:
- Enable interoperability and software re-use.
- Enable open standards for multi-messenger data.
- Develop common solutions for data processing.

Some ASTERICS expected impacts:
- Economies of scale and saving resources.
- Contribute to the construction and operation of ESFRI projects.

**European Open Science Cloud vision and perspective for Astron. & Astrop.**

- cooperating on means to store, move, archive, preserve, process and provide open access for Exabyte scale data sets with existing and well proven major computing-data centres such as those of the EU-T0 consortium and others supporting the ESFRI projects, coherently with ESO and ESA plans.

- providing use-cases to explore technical impact of new model of hybrid public-private cloud computing for science in Europe (e.g. HelixNebula Science Cloud).

- building up a very large community stakeholder API to upload the scientists in a cloud environment to access, discover, mine and interoperable data.