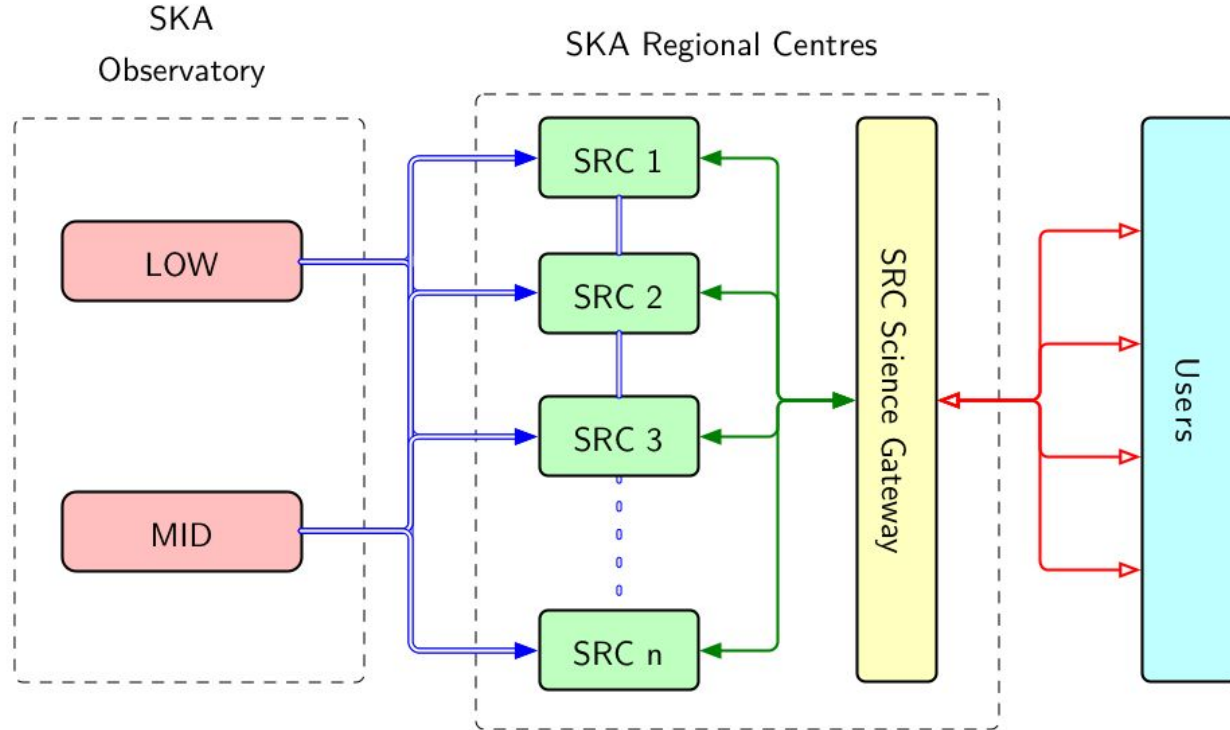




SRCNet Computing Services API

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The SKA Regional Centres Architecture



The need for an API



1. Abstract from heterogeneous technologies
2. Abstract from the evolution of technology
3. Access different sites (data + computing)
4. Access different data sources, different telescopes/missions/instruments

Computing Services API



Working to develop an API to:

1. **discover** computing services, answering the question "what computing services are available and suitable to run my task?"
2. **access** computing services, answering the question "how can I run my task on the selected computing service (and when)?"

Computing Services API: 2 important things to remember

1. THE FOCUS IS NOT ON THE TECHNOLOGY BUT TO PROVIDE AN ABSTRACTION ABOVE TECHNOLOGY.
2. DATA IS NOT MENTIONED HERE, BUT IT PLAYS AN ESSENTIAL ROLE ON SERVICE SELECTION: DATA AND CORRESPONDING COMPUTING MUST “LIVE TOGETHER”.

The Execution Planner



Represents a possible model for developing the Computing API.

It provides:

- a data model
- a way to interrogate computing services
- a way to execute a task on a selected service

For details, see Dave Morris' presentation in 5 minutes

Current Status (the work that is in progress)



Implementation of the Execution Planner on use cases of interest for SKA:

1. Source detection in FITS images (SExtractor based)
2. Remote visualization of data cubes (VisIVO based)

Computing Services Available for Testing

1. Pleiadi HPC system @ INAF (Italy)

- 72+72+72 Intel Broadwell nodes with 256 GB RAM and 36 cores per node
- 12 GPU nodes (NVIDIA K40+K80+V100)
- Cluster @ IRA focused on radioastronomy (fast SSD I/O, specialized software stack)
- SLURM scheduler
- Already in use for SKA data challenge

2. PT-JP intercontinental cloud (Olive team)

- Small cores, small RAM, small storage
- Still under network (VPN) problem

3. JPSRC server @ NAOJ (Japan)

- 64 cores, 1TB RAM, 2xA6000, 160TB HDD, in use for SDC3
- It will be in the k8s cluster on the JPSRC cloud, by late January

4. Portugal HPC service

- Detailed to be defined