

Discussion on how to handle compute infrastructure in the ESCAPE project.

Discussion with representatives from WP2 (task 2.3), WP5 (task 5.4) and WP3.

Present:

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Main points of discussion:

There are two issues that need further discussion:

- Even though the project does not focus on providing compute resources, a minimal amount of resources is needed to execute the use cases at all. For this, an inventory needs to be made. It is pragmatic to have the compute colocated with the storage (and it depending on the use case a certain amount of colocation may even be needed).
 - An inventory needs to be made of how much resources are needed by the different use cases. Jutta will have a look at this since this is part of the inventory generated by WP3
 - We need to have a discussion with the infrastructure providers about how best to proceed here. Providing infrastructure is one part, but also we need to think about things like authentication and authorization
- Also, the question is whether the middleware(e.g. DIRAC, DODAS, ...) that the several tasks that integrate with computing should not at least be inventorised and possibly tested. This is certainly not an issue for the short term but we need further discussion on whether and how to include this in the work.

The goal of the exercise is to come up with suggestions for the management work package to discuss during their meeting on the F2F meeting in Brussels.

Friday 31 January, the next call will happen. We will invite the infrastructure providers. Jutta will present the overview of resources needed for the test cases.

=== raw version of the minutes, slightly unordered... ===

1. Plans of each sub group, especially how they connect to the compute infrastructure.
 - Inventory of what we as a project actually expect from compute providers, especially if there are omissions between what we expect/need.
2. Inventory of what needs to be provided for the project by the infrastructure providers.

Of course, if you have any points to add let me know. Also if you think anybody else should join, feel free to invite them.

T2.3:

- infrastructure CERN is not open to people not CERN. So it could be useful for test, proof of concept but to really try out, it is strictly ruled by CERN
- Computing wise we don't have resources for ESCAPE. There is storage pledged. There is some resources for the cache. Currently begging for help from the experiments. This cannot be a long standing issue.
- Scaling out to other locations would also be hard without pledged resources

T5.5:

- we have the data lake and we have the cloud resources, what happens if we connect to the HPC resources (which we don't have apart from our own development and testing infrastructure).

WP3:

- T3.2, 3.5 - Software repository
 - <https://gitlab.in2p3.fr/escape2020> (LAPP)
 - need container/docker environment
- T3.3 - Focus group CORSIKA
 - Storage of simulation files
 - storage & Provision of containers

INFN: Currently 4 TB but next week maybe get 10 TB and a faster storage device.

Access is through SFTP at the moment. I can set up different modes depending on needs. (Machine: sysal.phys.unisa.it (193.205.188.228))

- Focus group distributed computing (also T3.3) Suggestion by CNRS: Use EGI computing resources for testing a CORSIKA application portal based on DIRAC framework

In the project there is stated nowhere where the computing should be. EOSC resources and HPC should be somewhere but here the question is where, The idea is that each partner contributes to storage/computing more or less fairly. Up to now we do not have any computing. Storage (data lake and caching) is there, but there are no CPUs to prove that everything is working.

Solution should be for each of the partners to contribute in computing.

WP5 makes the platform, WP3 the software, WP4 the VO standards but everybody forgot that you have to execute the container somewhere.

CERN system is very closed for outsiders

INAF it is a HPC resource, which may be accessible cloud resource?

Other HPC resource to test in multiple HPC environments

ASTRON will ask SURFsara for resources

INAF has DODAS which is in practise using resources in a federated grid as being part of the same Tier. The last mile stone is to have experiment agnostic deployment (HT Condor).

We can construct a new grid site that interacts with the WLCCG like DODAS. That could be a real solution that could solve the problem now.

Interactive processing would be accomodatable for smaller data sets with caching.

Finding the resources and then finding the middleware

Look at DODAS, EGI federated cloud, should we gather a computing working group to look at the "island of compute inside the data lake".

Few telecons before the F2F meeting and eventually discuss/present possible solutions.

WP2: In a sense we are stuck because we can not get the partners to test their workflow in the testbed.

Requirements WP3/WP5 on the development. From there appear the first requirements when testing cannot happen.

Time scale in connection between WP3/WP5 where it would be needed to have a demo after the summer. WP3 pov is how neatly we want to have it done. It is not a showstopper but it would make things more coherent.

We have 6 months to find a solution to advance demonstration and development.

2 decision points:

- resources we can get this can be short term
- middleware this could be a longer-term plan

Before the meeting have a list of partners and ask WP1 to agree on us needing this and agreeing on who gets access.

User needs to have access to the compute, and access to the data. The main issue astronomers using the grid is the different way of doing data analysis.

Once we have the resources, the middleware should take care of the authentication. We can start the process when we have the pledge of the infrastucture partners.

Having the storage and the compute colocated is at our commodity. Whether or not to move the data is a requirement that depends on the use case. Interactive computing on the data can be done close to the data.

Requirement on the type of compute.

CMS single core jobs, eight core jobs, sixteen core jobs. Depends on the workflow.

Notebook should be the access point on your machine/notebook. We also need server with Jupyter, sciencebox and also batch system to perform.

- Both Notebooks and batch
- Do we want access to the physical machines, or only access to the service layer (provided by them)? In the ESCAPE context it is proof-of-context so access to the service layer should be ok
- WP3 -> we can derive the resources from the data in the repository
- Also people may want to run simulations

JS: Resource requirements from WP3

YG: Calling the meeting -> send around the list that Ares compiled

JS: find connection details or ping YG