ER-flow Application Description Template

Application Name:
VisIVO

Application domain:
Astrophysics

Brief description of application
VisIVO allows to import cosmological datasets and build customized 3D visualization and movies of that datasets. A cosmological simulation produces a set of snapshots at different time steps with different time tags, not linearly distributed. The researcher is normally interested in sub-regions, voids or halos.
VisIVO application produces a **3D movie** representing the evolution of a cosmological n-body simulation into the defined sub-region.

data:
input data format: tar gz file containing the cosmological evolution
input data format: ascii file containing the sub-region
output data format: mp4 file containing the final movie

sample data (link): http://sourceforge.net/projects/visivoserver/
documentation (link): http://sourceforge.net/projects/visivoserver/
publication (link): http://arxiv.org/pdf/1005.1837v1

Execution environment
DCI: (computing, data, VO, etc): A&A VO in EGI and any other VO giving support to the A&A community.
middleware: gLite workflow system: WS-PGRADE

Execution characteristics
data size (per unit, typical number of units):

input	temporary	output
0.5 GB – 50 GB	0.5 GB – 50 GB	< 0.5 GB

processing time (per unit): 7 hours considering 30 snapshots of $0.5 * 10^9$ particles
memory usage: 2GB disk usage: 50 GB

Target users
Community: Cosmologist interested in visualizing 3D representation of a cosmological simulation.
number of users: ---- 25
user type: Researchers/PhD Students developer: Yes end-user: Yes
End-user in different kind of research fields interested in 3D visualization of complex data, common citizens.

Usage scenario for workflow in the ER-FLOW (how workflow will be reused, meta-workflow, how expected to contribute to project indicators, etc.).

The workflow will be accessed via VisIVO science gateway (http://visivo.oact.inaf.it:8080), the user will submit the workflow configuring the input data files and parameters by an easy to use interface (portlet).
The workflow has a modular architecture and can be easily reused to build other workflows.

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