Status of SuperB Computing in Krakow

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2 June 2012

- Tools developing

1. Polish involvment
   - Ganga and Dirac
   - Tier2 structure
   - PLGrid+
   - GPU computing

Tools developing

- Developing tools for central production.
- Developing of WMS.

Ganga and Dirac

- 2 staff members in ifj are working on Dirac development. Could work on putting it in SuperB.
- 2 staff members in ifj would like to do GUI for ganga.
  1. http://insilicolab.grid.cyfronet.pl/
  2. http://insilicolab.grid.cyfronet.pl/
- portals are integrated with Dirac

Tier2 structure

1. 88th in top500.
2. Upgrade to Tier1 foreseen.
3. Cracow has a computing center Cyfronet, that is part of Polish Tier2.
4. Currently SuperB FastSim is beeing installed in Cracow.
5. Very keen on doing central production (if Tier2 is enought).
6. People able to do shifts in central production.

PLGrid+

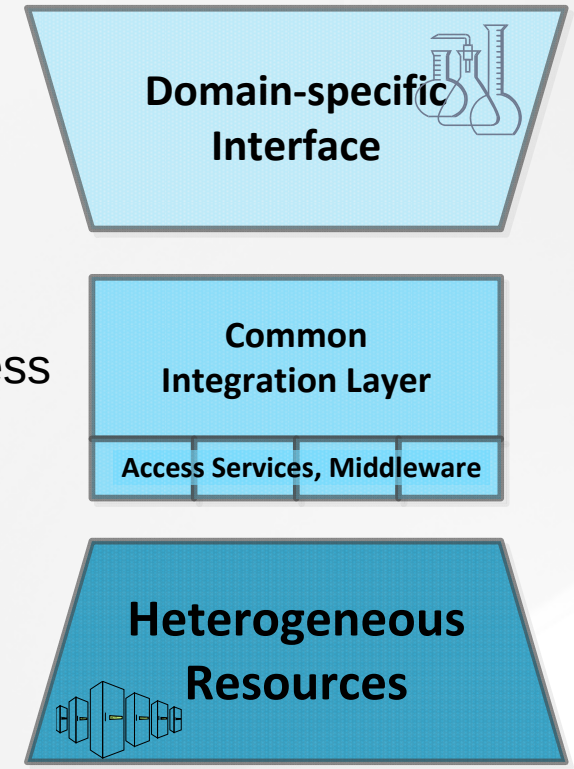
- New initaitive
- Parrarel to normal grid, but you have more fredom. Don't need support from VO.
- Synchronising with data avaible in VO.
- Constrain: you need to ask for computing grant (from my experience it takes 5 min to fill the form).
- They ask for acknowlegments in published papers.

GPU computing

1. Write a Kalman filter using CUDA. First tests for the IFR. Possibility to be used in others detectors.
2. Study possibility of using FastSim and FullSim on GPU.

Architecture – Idea

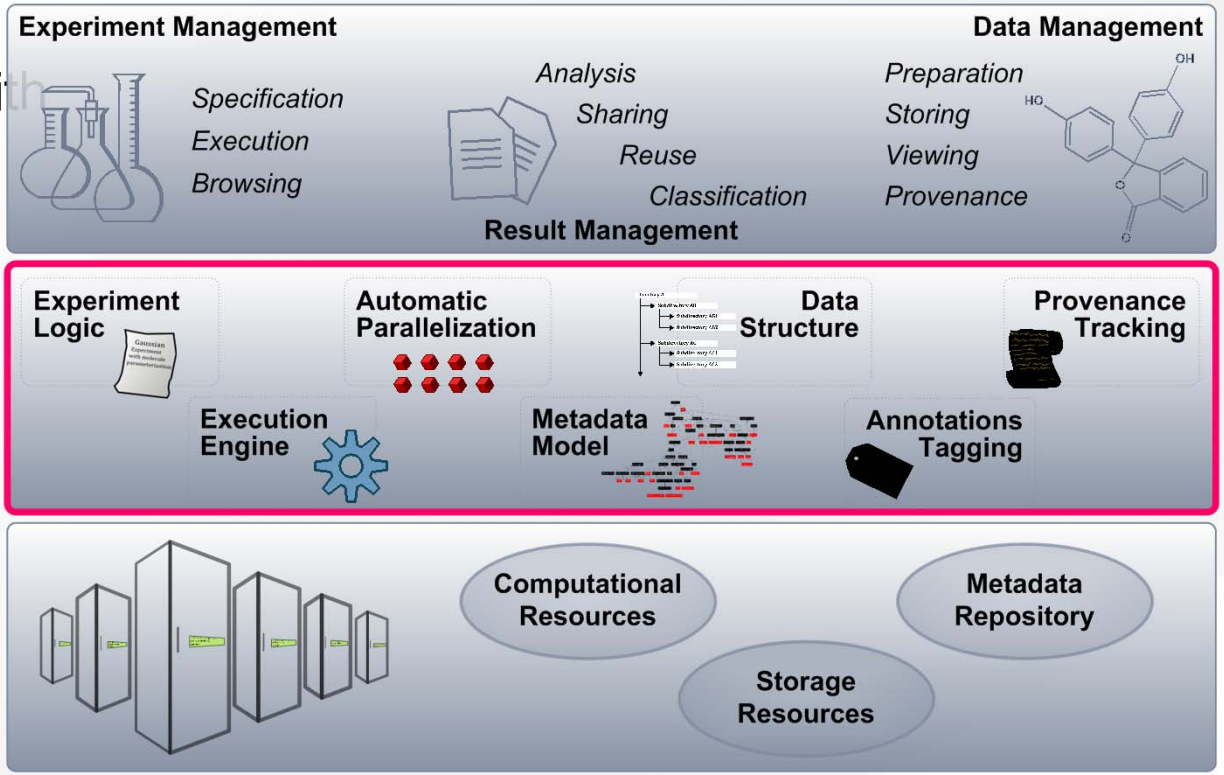
- System should be optimised for problems with common characteristics, like:
  - Large resource consumption
  - Repeatability – experiments conducted in similar way
- It is not limited to these problems
- Architecture of the whole system is generic
  - Ensures access to large, heterogeneous computing and storage resources
  - Through integration layer – built on top of resource access services, middleware, etc.
  - Presented to the user with domain/problem-specific interface



InSilicoLab Architecture: Mediation Layer

InSilicoLab introduces an additional layer – ***mediation layer***, that:

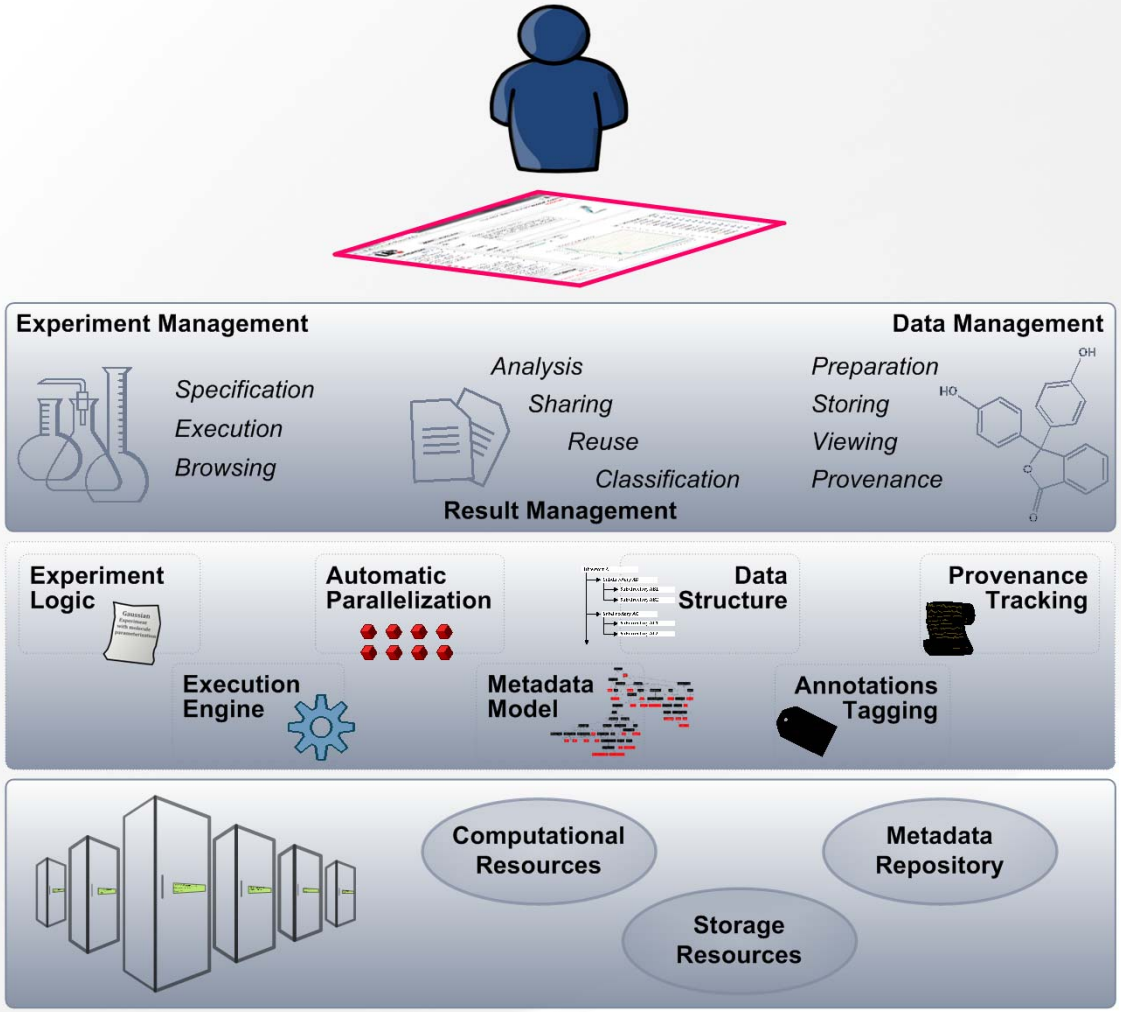
- Joins the user-domain space with the resource access layer
- Is responsible for:
  - ›Executing the experiment's logic
  - ›Automatic parallelization
  - ›Execution monitoring
  - ›Storing the user's data
  - ›Creating metadata – annotations, tags
  - ›Provenance recording



InSilicoLab Architecture: Presentation Layer

Communication with the user is realized through a ***Web portal***:

- An interface operating on the domain layer – on the concepts from the specific domain of science
- Enables access to the user's space (work environment) and data stored by the user, from every computer connected to the Internet



How we create/integrate new experiments – e.g. SuperB

- Discover a pattern in the researchers work
  - A joint effort of the developers and the researchers teams
- Put it down as an algorithm – experiment logic
- Translate into necessary scripts
  - Include input and results management
  - Allow metadata attachment
- Adjust interface
  - Input specification
  - Result display
  - If neccessary: new data types management
- We plan to integrate SuperB fast simulation calculations within this framework

Summary

- The *InSilicoLab* portal is available to researchers performing *in silico* experiments in many domains of science

- Validated against two scientific domains and their specific computational problems

http://insilicolab.grid.cyfronet.pl
http://ctaportal.grid.cyfronet.pl

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