Computing in SHiP production cluster

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Skygrid

System to run computations in docker containers:

- 1700 cores (60 machines)
- Data backends: dCache, afs, cvmfs, git
- Deployed in Yandex, can be extended to multiple sites

Users

Services

Metascheduler

(queue service)

Clusters

Workers
Done with skygrid

Already:

- 1 billion muon background simulation
- Neutrino and anti-neutrino background + reprocessing
- $10^{10}$ muon background events

Plans:

- Shield geometry optimisation
- Pattern recognition for tracks
- Event reconstruction
How computations are performed?
You start with your code and data

Code
(on git)

Data
(somewhere)
VM is started in the cluster

VM with FairRoot

(on the cluster)

Code
(on git)

Data
(somewhere)
Your code/data is downloaded inside VM

Code
(on git)

Data
(somewhere)

VM with FairRoot

/\input
(on the cluster)

git clone

Download
Code runs and writes to /output

VM with FairRoot

Code
(on git)

Data
(somewhere)

/code

/input

/output

Code runs
(on the cluster)
/output contents are stored

VM with FairRoot

Code
(on git)

Data
(somewhere)

Code runs
(on the cluster)

/input

/ output

Upload

Backend

Download

git clone

/ output contents are stored

VM with FairRoot

Code
(on git)

Data
(somewhere)

Code runs
(on the cluster)

/input

/ output

Upload

Backend

Download

git clone
How do I submit jobs?

Check out tutorial: github.com/ShipSoft/FairShip/wiki/Docker-tutorial

To run your jobs we’ll need next info:

- Git repository with your code (should be public)
- Command line to execute
- Optional: Which data is needed?
- Optional: any non-default(FairRoot) containers to run

You can send me or on skygrid-users@cern.ch
Wrap-up

- Lots of things done with skygrid already
- Your jobs are really welcome!
- Commit your code to github and you are ready to run it in skygrid
- Bookkeeping is coming
Questions and Answers

Mailing list: skygrid-users@cern.ch

All your comments and jobs are welcome!
Backup