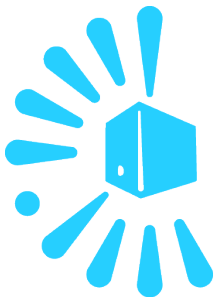# Remote Job Submission
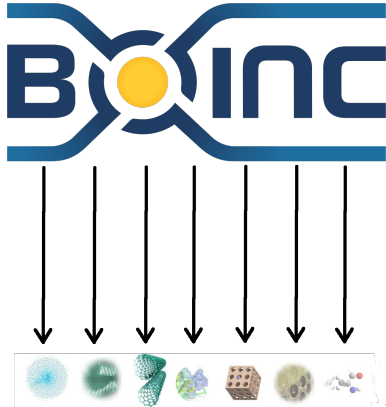
Francisco Sanz

Ibercivis

September 27, 2012
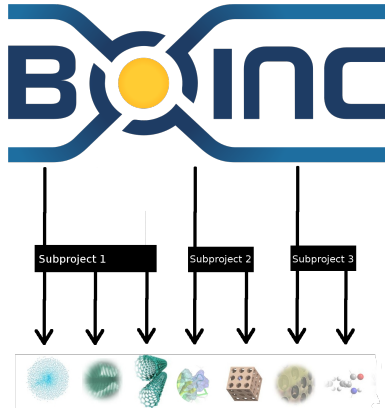
BOINC apps

- A BOINC project can have several apps

Ibercivis subproject concept

- Ibercivis inserts the concept of subproject
- Each application belongs to a subproject
- A new table *subproject* has been created
- A scientist can send jobs (group of workunits) to each subproject

Scientist


```
Terminal - ---=:[ibercivis@scheduler.ibercivis.es :¬)]:=---
Archivo  Editar  Ver  Terminal  Ir  Ayuda
wwrun:x:30:8:WWW daemon apache:/var/lib/wwwrun:/bin/false
ibercivis:x:1000:100:ibercivis:/home/ibercivis:/bin/bash
icivishell:x:1001:100:icivishell:/home/ibercivis/middleware/minishell:/home/ibercivis/middleware/minishell/minishell
nagios:x:1002:100:nagios:/home/nagios:/bin/bash
                                                                                    21,1          95%
```

- Scientists can access to a *minishell* trough ssh in order to send, check status... of jobs
- Each scientist is authorized to send jobs to one or more subprojects
- A group of shell scripts are provided to the scientist in order to access to the minishell

Commands

Scientist commands

- icivis_send_job
- icivis_status_job
- icivis_erase_job
- icivis_queue_status
- icivis_profile
- icivis_debug

Minishell

Jobs

- A job is a group of workunits
- A new table *job* was created
- Scientist can send jobs using the *icivis_send_job* command
  - □ icivis_send_job nick priority jdl_file list_of_files
  - □ The jdl file contains
    - proyecto=name_of_subproject
    - script=name_of_script_to_be_called
    - nwus=number_of_workunits
    - nombre=name_of_the_job
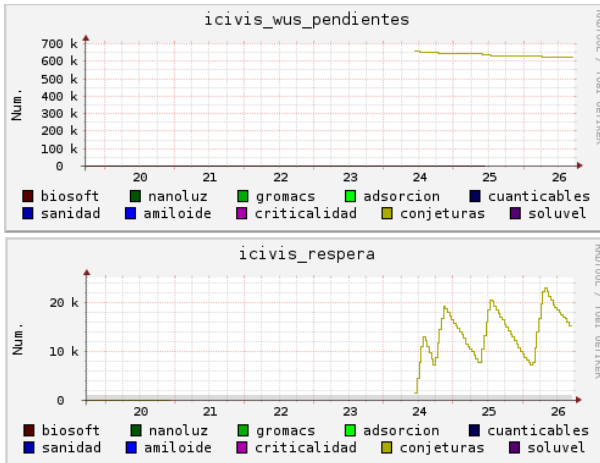- Workunits can be assimilated in their own job folder

Server scripts

- A daemon *crea_trabajo* is running for each subproject
- The number of usent results are maintained between a MAX and a MIN values
  - If the number of unsent results are below the MIN value the script provided by the jdl file is called
  - New workunits are created up to MAX value or until the job is finished
  - If the number of unsent results are over the MAX value, no new workunits are created
  - If the nwus has been reached, a new job is selected from the queue

Creation of workunits

Principal changes

- New table subproject, subprojectid field inside app table
- New table scientist
- New table scientist_auth
- New table job, jobid field inside workunit table
- Necessary patches in the source code
- crea_trabajo script (one instance for each subproject)
- One script to create workunits for each subproject

Principal features

- *Unlimited* number of workunits inside a job
- Not all workunits created at once
- Remote access
- Error handling
- Continuity

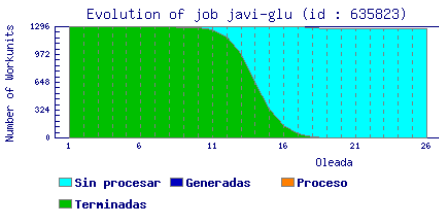# Continuity

Very long workunits

- Can be splitted in waves
- Output files are assimilated and used as input files for new workunits
- A new job is created for each wave, continuityid field
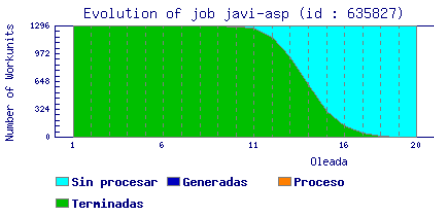- As many waves as needed

Continuity

javi-glu

10 (+16) oleadas *∼ 1296 WUs

completado 134 % (17539 WUs)

terminadas 3

oleada 26   1 WUs (0 %)

Evolution of job javi-glu (id : 635823)

javi-asp

10 (+10) oleadas *∼ 1296 WUs

completado 133 % (17406 WUs)

terminadas 3

oleada 20   1 WUs (0 %)

Evolution of job javi-asp (id : 635827)

Example of use

Preparation

- The script to create the workunit is placed
- The scientist send us his id_rsa.pub file
  - □ The scientist has access to the minishell

Use

- The scientist send a job using *./icivis_send_job*
- A new *tar.gz* is placed in the queue
- The instance of *crea_trabajo* expand the *tar.gz* file
- The *crea_trabajo* script calls the subproject script as many times as needed
- The scientist can check the status of his job using *icivis_status_job*

Numbers

- Installed in
  - Ibercivis (twice), Spain and Portugal
  - Ibercivis_Alfa
  - Brazil
- **Ibercivis**
  - 3221 jobs created
  - 16 subprojects
  - 41 apps
  - 18 scientists

Future work

- Nice web portal
- Graphical information
- More Statistics
- QoS

Questions?

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