



ibercivis

La ciencia en casa

Ibercivis: New developments for deploying a stable desktop grid

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Outline

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Researchers

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Introduction

High number of BOINC international projects exist

BIFI had the Zaragoza city oriented project called Zivis

- 1 BOINC server, 1 application (ISDEP CIEMAT-BIFI)

This showed us Volunteer Computing as:

- feasible (useful) e-science resources platform
- effective dissemination tool

Volunteer Computing is a subset of Desktop Grids

- Resources are “volatile”
- There is not an unique system administrator
- Very energy efficient as no incremental use at home

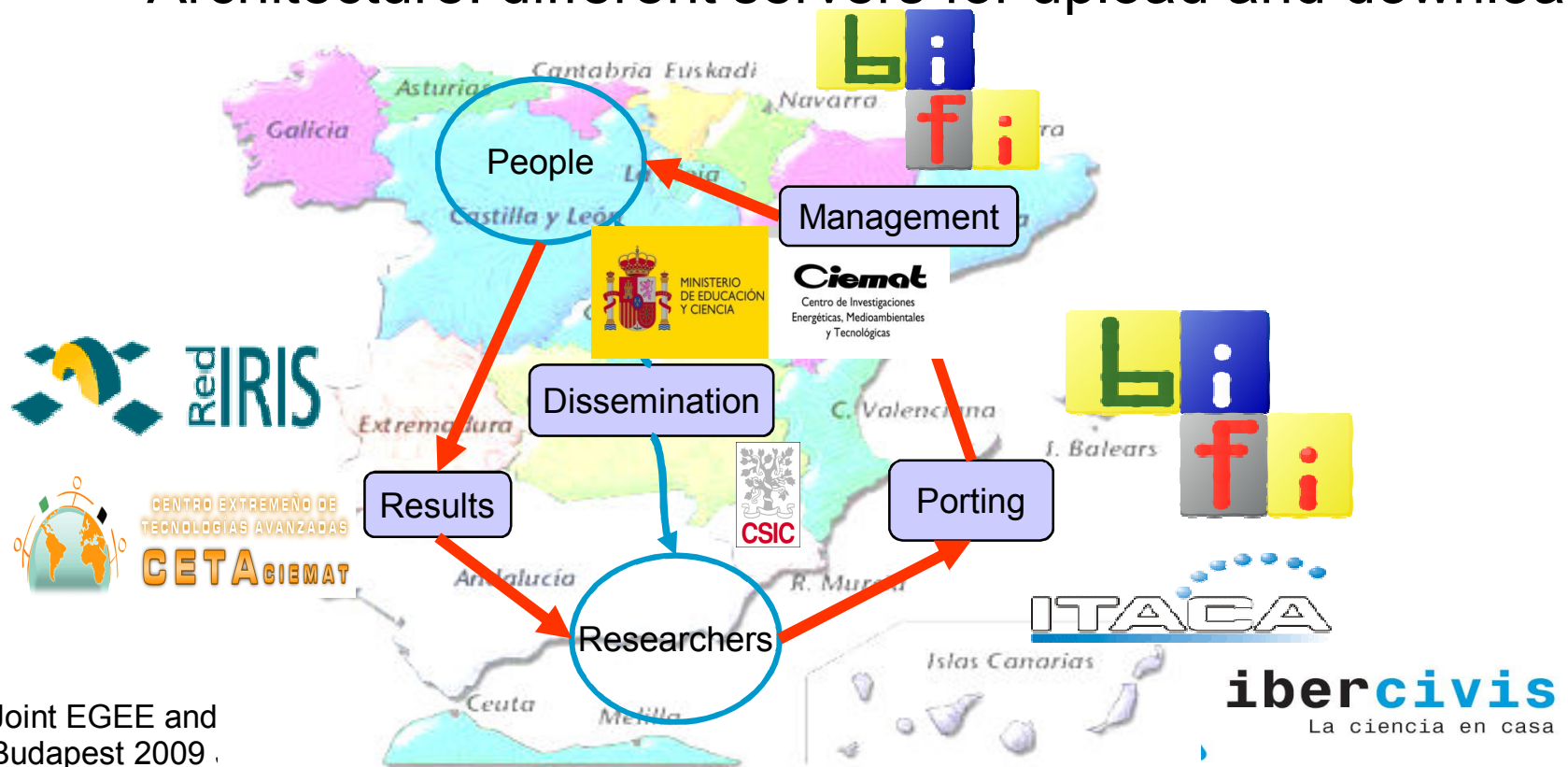
Ibercivis motivation

- To approach external resources usage (volunteer) to internal resources usage (clusters)
- To allow more applications in this infrastructure (typically one BOINC project only hosts one application)
- To support a big number of users (and WUs)

Overview

Scalar approach:

- Tasks: separate work package for each partner (Spain)
- Architecture: different servers for upload and download



Developments

To allow more connections: distributed infrastructure

4 machines in Backbone BOINC/ibercivis

BIFI (users management, queueing, download, statistics)

RedIRIS (balancing, backup)

CETA (upload, validation, storage, continuity)

CSIC (download)

New servers are being deployed (Portugal connection)

Developments

To increase applications range: long jobs management

Different mechanism to fraction_done or checkpointing (as this grants credits for each subjob):

- A job is divided into subjobs, order matters
- Each subjob is a workunit
- Workunits are sent to clients
- When a workunit (result) comes back, we check if it is the final subjob (after validation, assimilation and credits)
- If not, it is resent to another client

- We call this “continuity”

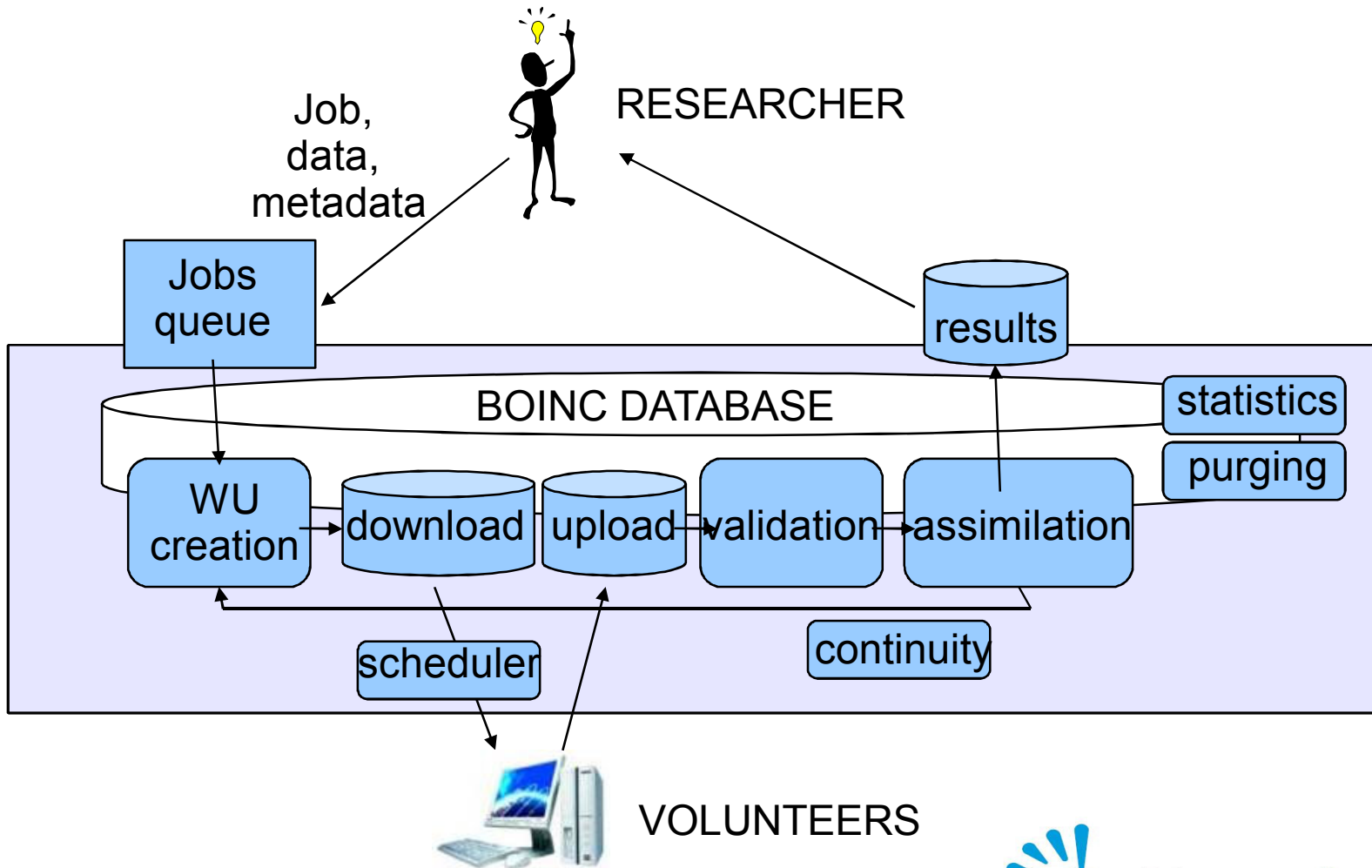
Developments

Easier access for researchers: shell && priority && monitoring

Shell scripts of commands: `icivis_debug`, `icivis_send_job`,
`icivis_status_job`, `icivis_erase_job`, `icivis_profile`

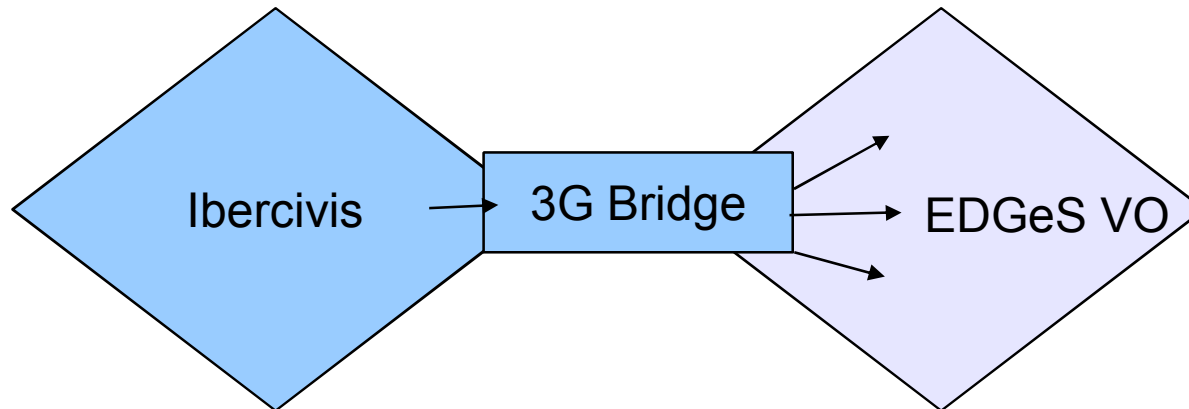
```
ibercivis@zaragoza:~/middleware/comandos> ./icivis_status_job gordillo list
Id      -- Nombre                                     -- Nvus      -- Terminadas  -- Erroneas
624621  -- L128p925_completar oleada 3                -- 12993/18500 -- 7358          -- 0
623517  -- L128p875_500samples oleada 4                -- 18260/18500 -- 18243         -- 17
623785  -- L128p875_500samples oleada 7                -- 18243/18500 -- 18231         -- 9
624513  -- L128p875_500samples oleada 10               -- 12758/18500 -- 12327         -- 40
624617  -- L128p875_500samples oleada 11               -- 10208/18500 -- 9297          -- 0
624657  -- L128p875_500samples oleada 12               -- 2130/18500  -- 0             -- 0
623329  -- L128p95_new oleada 2                        -- 18469/18500 -- 18462         -- 7
623357  -- L128p95_new oleada 3                        -- 18370/18500 -- 18348         -- 3
623373  -- L128p95_new oleada 4                        -- 17911/18500 -- 17904         -- 7
623393  -- L128p95_new oleada 5                        -- 17634/18500 -- 17622         -- 12
623593  -- L128p95_new oleada 6                        -- 17621/18500 -- 17612         -- 9
623749  -- L128p95_new oleada 7                        -- 17611/18500 -- 17609         -- 2
623789  -- L128p95_new oleada 8                        -- 17604/18500 -- 17587         -- 17
624169  -- L128p95_new oleada 9                        -- 17572/18500 -- 17534         -- 45
624509  -- L128p95_new oleada 11                       -- 16127/18500 -- 13919         -- 46
624593  -- L128p95_new oleada 12                       -- 5336/18500  -- 5306          -- 11
624609  -- L128p95_new oleada 13                       -- 5286/18500  -- 5104          -- 1
624633  -- L128p95_new oleada 14                       -- 3185/18500  -- 4             -- 0
ibercivis@zaragoza:~/middleware/comandos>
```


Developments



EDGeS connection

From our point of view EDGeS VO is just a client



We will receive jobs soon

Researchers

Nuclear fusion

Protein Docking

Magnetic materials

Light in nanoscale

Neurons biosimulation

Porous materials

Protein Folding

Neuronal networks

Disordered systems

EDGeS applications

New Applications Call is open



Participants

Total users: 12.000

Total cores: 50.000

Daily, around 2.000 users and 7.000 cores connected

We manage around 2 Wus/sec

During June 2009 we have launched awards (laptops) for participants with higher time of CPU connected in order to boost participation

Conclusions

Spanish national volunteer computing initiative
Researchers oriented developments carried out
Very good usage reports (feedback) from users
Infrastructure is being highly used
Increasing number of volunteers connected

Thanks for your attention

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