Overview of the Ibercivis project
6th BOINC Workshop

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BIFI - Universidad de Zaragoza

London 2010

BIFI http://bifi.unizar.es

Research institute (University of Zaragoza) with 3 Areas: BIOCHEMICAL, PHYSICS, COMPUTATION

HPC   Dedicated Comp.   Volunteer Comp.   Grid

BIFI profile

Publications
Dissemination
Technology transfert

Usage   Support
Scientific code programming   Resource providers
Theoretical models   Technology research

RESEARCHERS   ENGINEERS
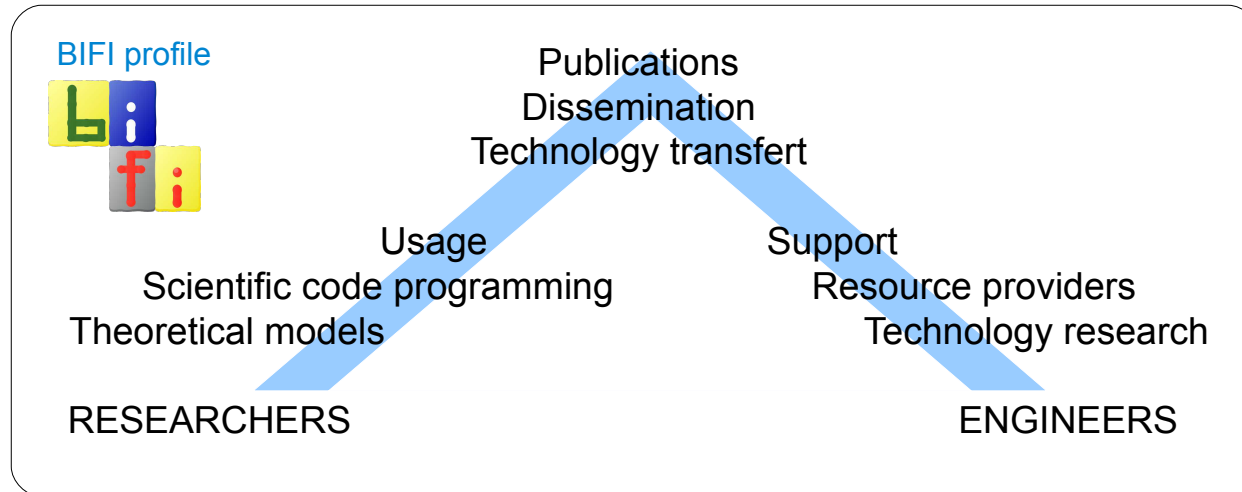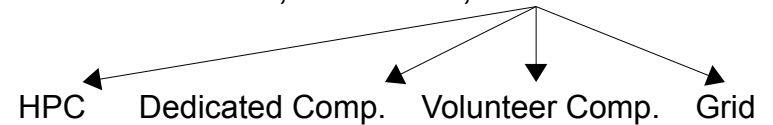
Ibercivis overview

what it is?
Spanish – Portuguese initiative
BOINC Multiapplication project

innovations?
Cluster approach: Ibercivis mini shell
Easy access: RSA pub. key
Long tasks management (continuity)
Distributed backbone infrastructure
Client compiled for easy registration

added value?
Social components and dissemination
Scientific usage and publications
Ministries of Science involved

Source: http://knowledgebase.e-irg.org/
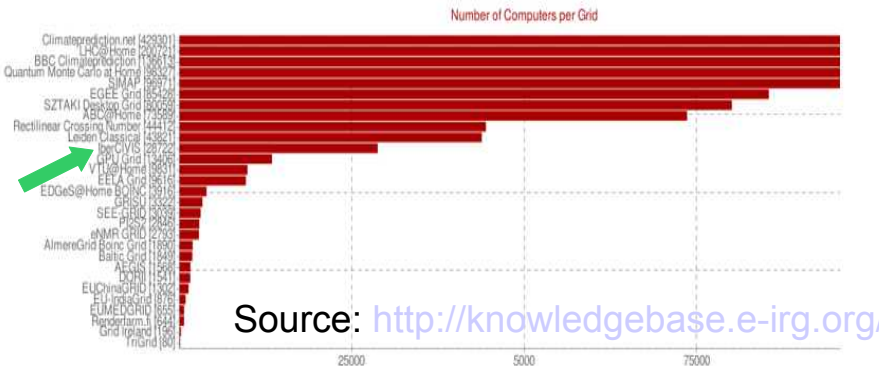
Other institutions:

Scientific communities in Ibercivis

Protein docking: CBMS0 UAM-CSIC

Plasmas in ITER simulation: Ciemat-BIFI

Light in nanoscale: CSIC

Memory molecular structure: CSIC

New magnetic materials: UCM, UNEX, BIFI

Porous materials: IQFR CSIC

Sanidad: Hospital Puerta del Mar

Ibernet: BIFI (Special one, not BOINC)
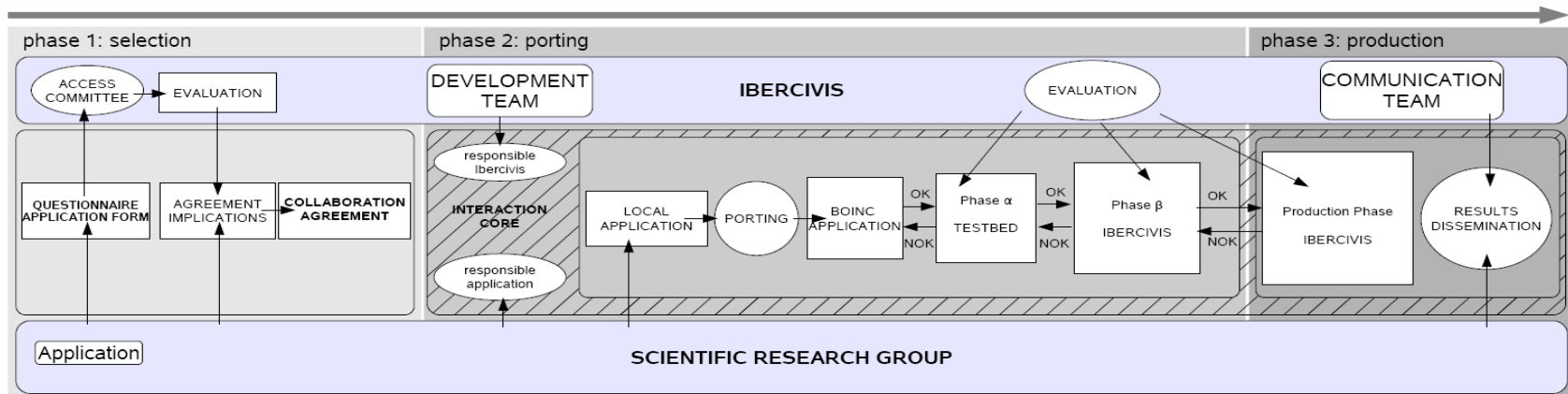
Protein stability: UCoimbra

Nanoscale wires: Univ. Buenos Aires

Criticalidad: Univ. Autónoma de Puebla

10 apps in production

2 in alpha phase: parallel temp., folding

New applications call open!

ibercivis
La ciencia en casa

Dissemination activities in Ibercivis

People involved?

Technical staff, scientific users and dissemination entities

Restrictions?

Only volunteers recruitment, not institutions with massive installations, yet
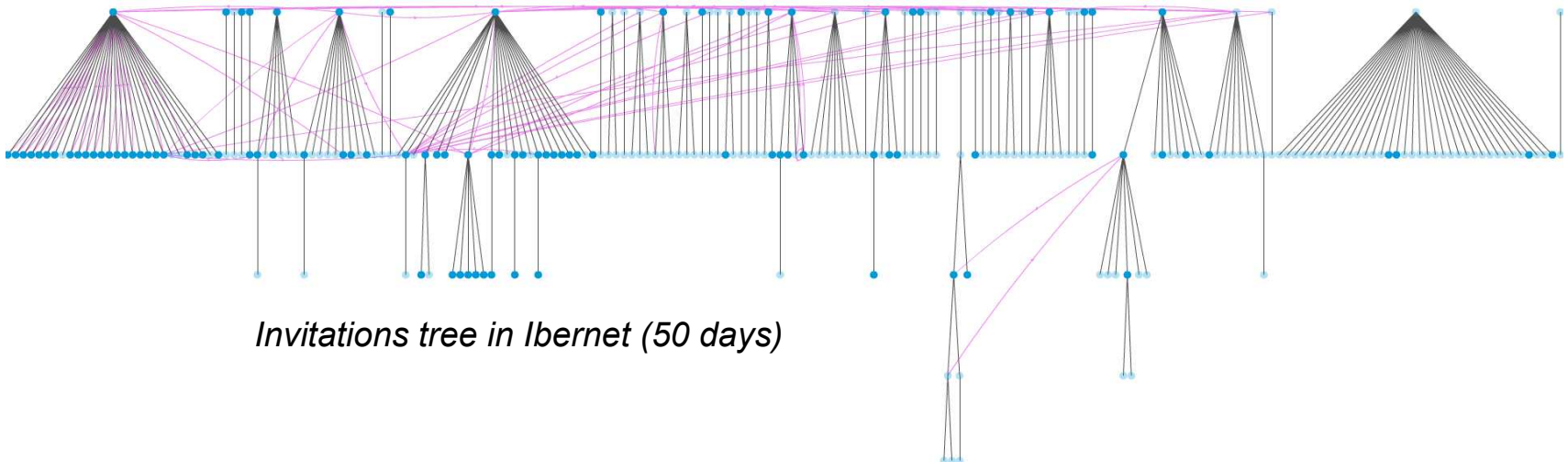
Work done?

Awards: Credits/CPUTime and accepted invitations (categories, regions)

Public events and dissemination material: leaflets, posters

Media: press-releases, tv appearances

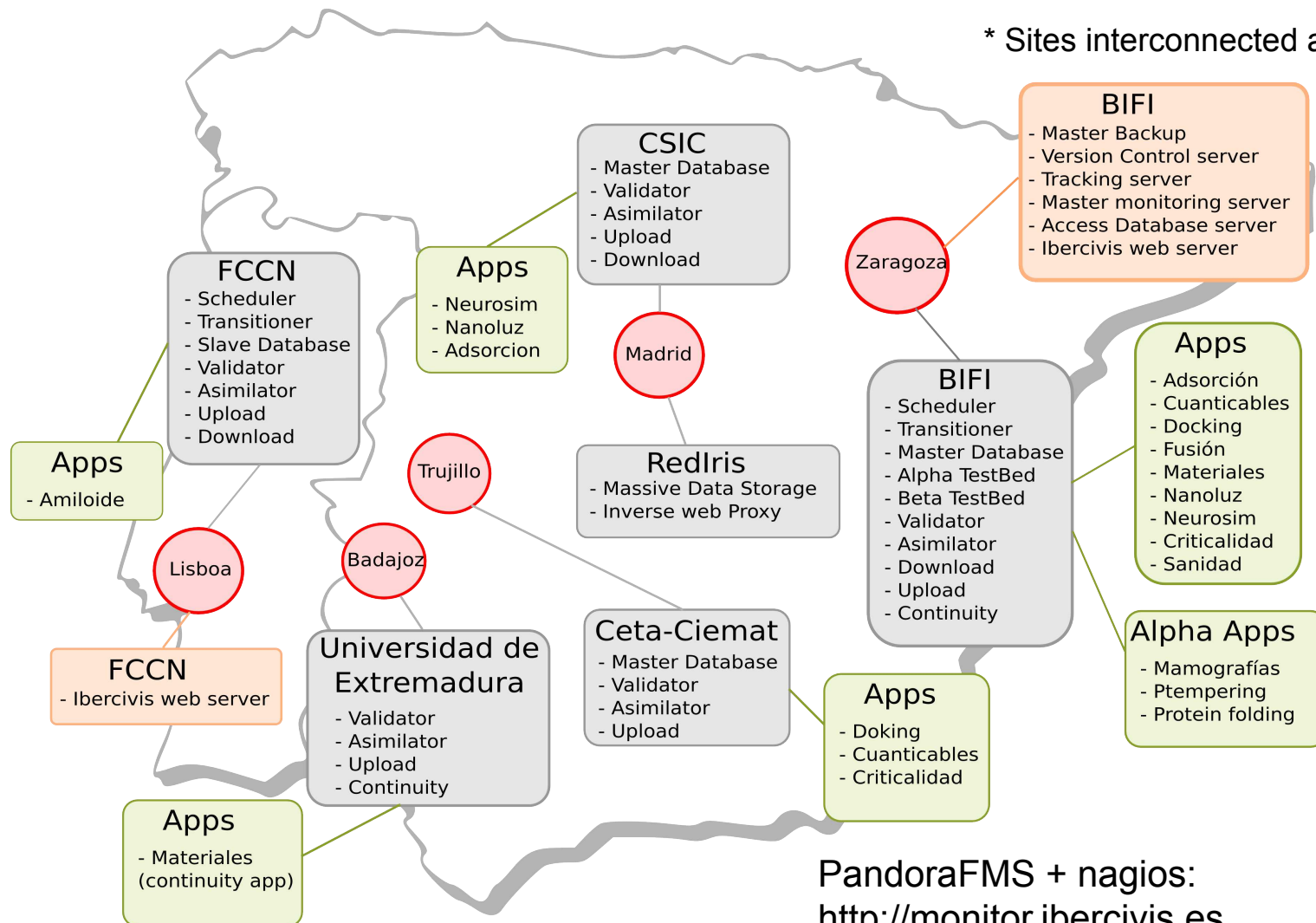Facebook (739 people like this), blogs (technical, applications), forums

Secondary schools: talks, didactical units (fusion, docking, computing)

Invitations tree in Ibernet (50 days)

Ibercivis architecture

* Sites interconnected at 2Gbps

BIFI
- Master Backup
- Version Control server
- Tracking server
- Master monitoring server
- Access Database server
- Ibercivis web server

CSIC
- Master Database
- Validator
- Asimilator
- Upload
- Download

Zaragoza

Apps
- Neurosim
- Nanoluz
- Adsorcion

FCCN
- Scheduler
- Transitioner
- Slave Database
- Validator
- Asimilator
- Upload
- Download

Madrid

BIFI
- Scheduler
- Transitioner
- Master Database
- Alpha TestBed
- Beta TestBed
- Validator
- Asimilator
- Download
- Upload
- Continuity

Apps
- Adsorción
- Cuanticables
- Docking
- Fusión
- Materiales
- Nanoluz
- Neurosim
- Criticalidad
- Sanidad

Trujillo

Apps
- Amiloide

RedIris
- Massive Data Storage
- Inverse web Proxy

Lisboa

Badajoz

Alpha Apps
- Mamografías
- Ptempering
- Protein folding

FCCN
- Ibercivis web server

Universidad de Extremadura
- Validator
- Asimilator
- Upload
- Continuity

Ceta-Ciemat
- Master Database
- Validator
- Asimilator
- Upload

Apps
- Doking
- Cuanticables
- Criticalidad

Apps
- Materiales
(continuity app)

PandoraFMS + nagios:
http://monitor.ibercivis.es
User: ibercivis
Pwd: ibercivis

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Distributed Scheduling

Two schedulers in two physical servers (Zaragoza – Lisboa)

In production since June 2009

Random requests from boinc clients = unbalanced result sending

MySql offset=2 autoinc=4	2	6	10	14	18	22	24	30	34
Zaragoza mod(id,8)=6		6		14		22		30	
Lisboa mod(id,8)=2	2		10		18		24		34

Solution (currently in alpha systems)
If (Zaragoza << Lisboa) set mysql offset = 6 autoincrement = 8
If (Lisboa << Zaragoza) set mysql offset = 2 autoincrement = 8
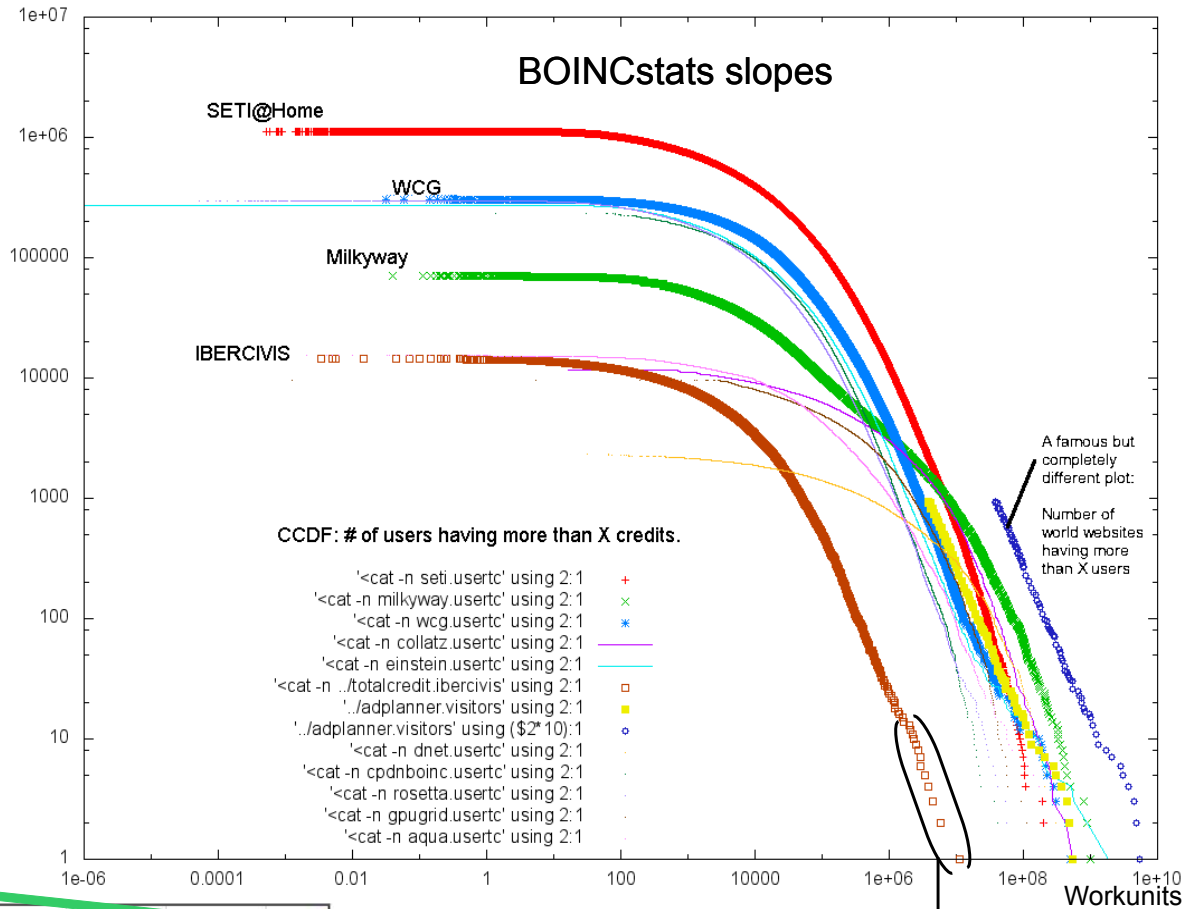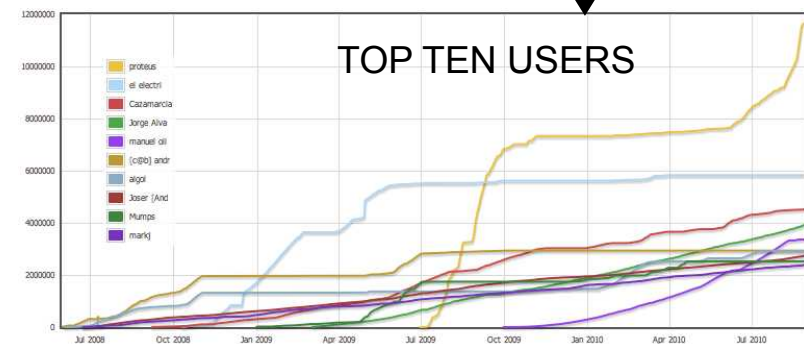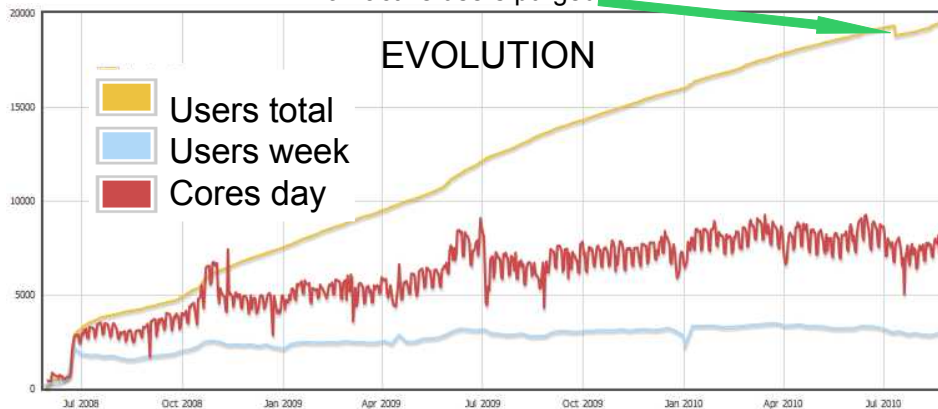else

ibercivis
La ciencia en casa

Some stats

Users (total | day): 20K | 2,4K

Connected cores (day): 8K - 9K

Equivalent cores (day): 1,4K

CPU hours / day: 30K – 35K

Scientific users: 10+2+1

Position of the user in the ranking

BOINCstats slopes

SETI@Home

WCG

Milkyway

IBERCIVIS

CCDF: # of users having more than X credits.

'<cat -n seti.usertc' using 2:1   +
'<cat -n milkyway.usertc' using 2:1   ×
'<cat -n wcg.usertc' using 2:1   ✻
'<cat -n collatz.usertc' using 2:1   ──
'<cat -n einstein.usertc' using 2:1   ──
'<cat -n ../totalcredit.ibercivis' using 2:1   □
'../adplanner.visitors' using 2:1   ■
'../adplanner.visitors' using ($2*10):1   ⊙
'<cat -n dnet.usertc' using 2:1
'<cat -n cpdnboinc.usertc' using 2:1
'<cat -n rosetta.usertc' using 2:1
'<cat -n gpugrid.usertc' using 2:1
'<cat -n aqua.usertc' using 2:1

A famous but completely different plot:

Number of world websites having more than X users

Workunits

Non-active users purged

EVOLUTION

Users total
Users week
Cores day

TOP TEN USERS

Thanks for your attention