



# ***The (first) 10 Years of GRIF.***



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# ***A Bit Of History.***





# GRIF Comes to Life.

2003-2004

**Tier-1** center in **CCIN2P3**  
created by CEA et IN2P3.

Dec 2004

**LAL** and **IRFU** start planning a  
common **Tier-2** center.

17 Feb 2005

LHC labs in IdF meet: **LAL**, **IRFU**,  
**LPNHE** enter the project.

Mar 2005

**GRIF is Born!**

Sep 2005

**LLR** and **IPNO** join GRIF

Sep 2006

**APC** join GRIF

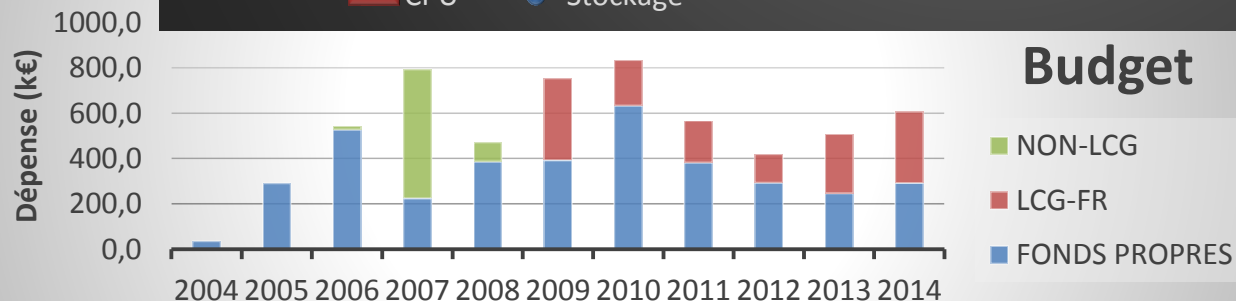
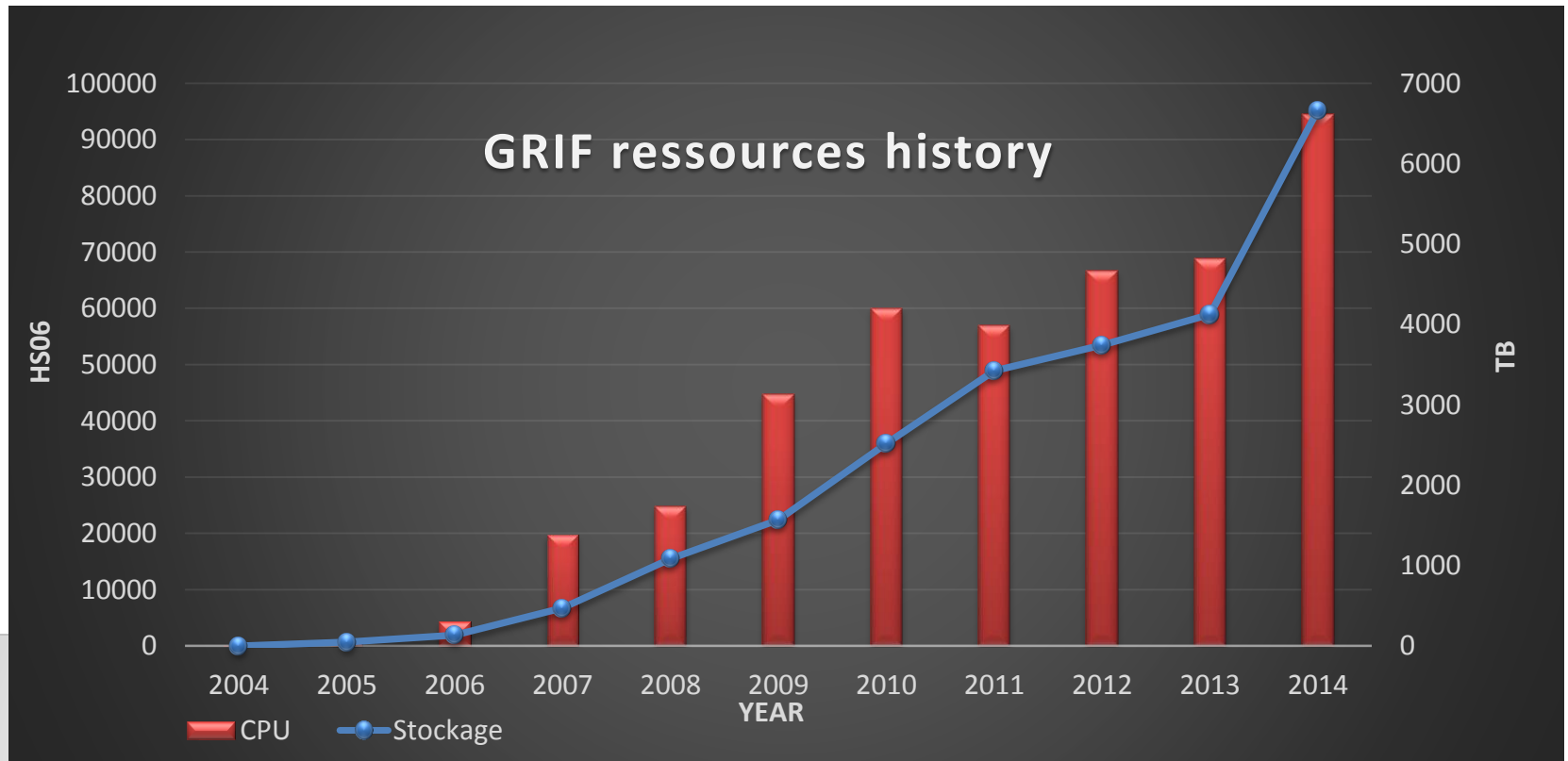
Q1 2010

Start of **LHC** data taking





# Evolution of Resources...

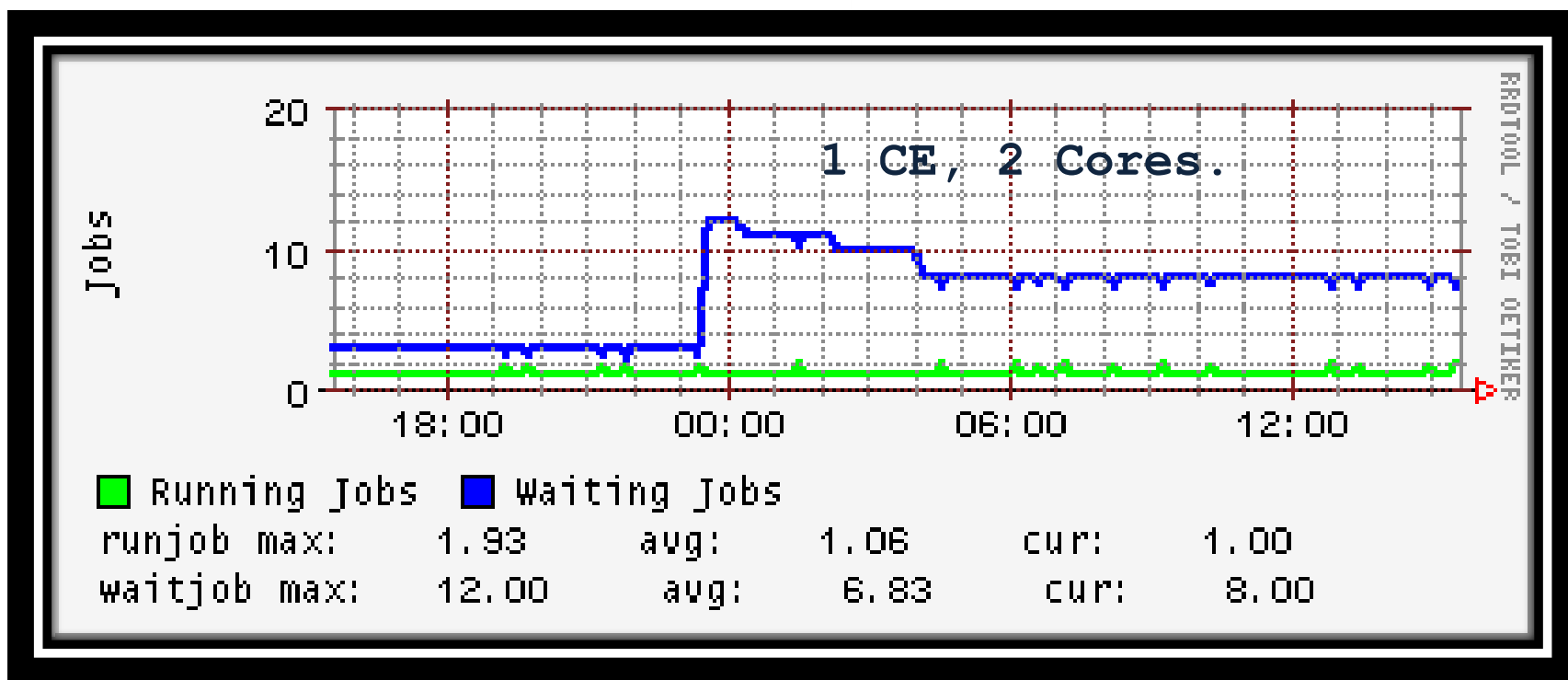


Properly fed  
the baby  
grows up.



# *...Evolution of Resources...*

Jobs Queuing/Running on the DAPNIA CE on 2/06/2005



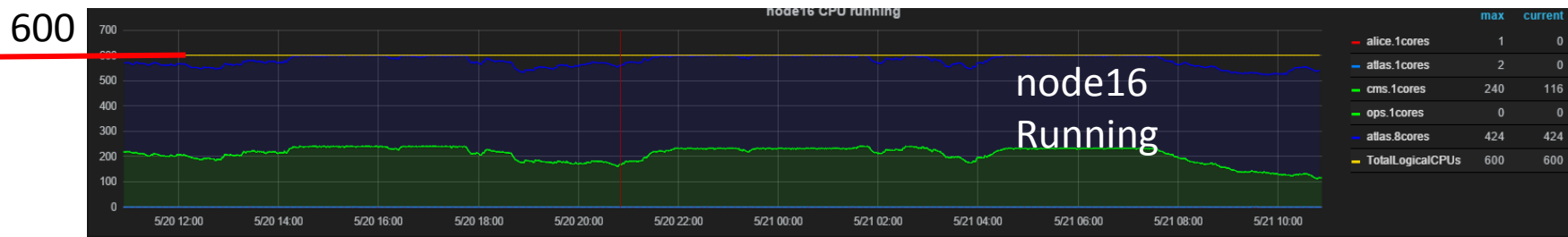
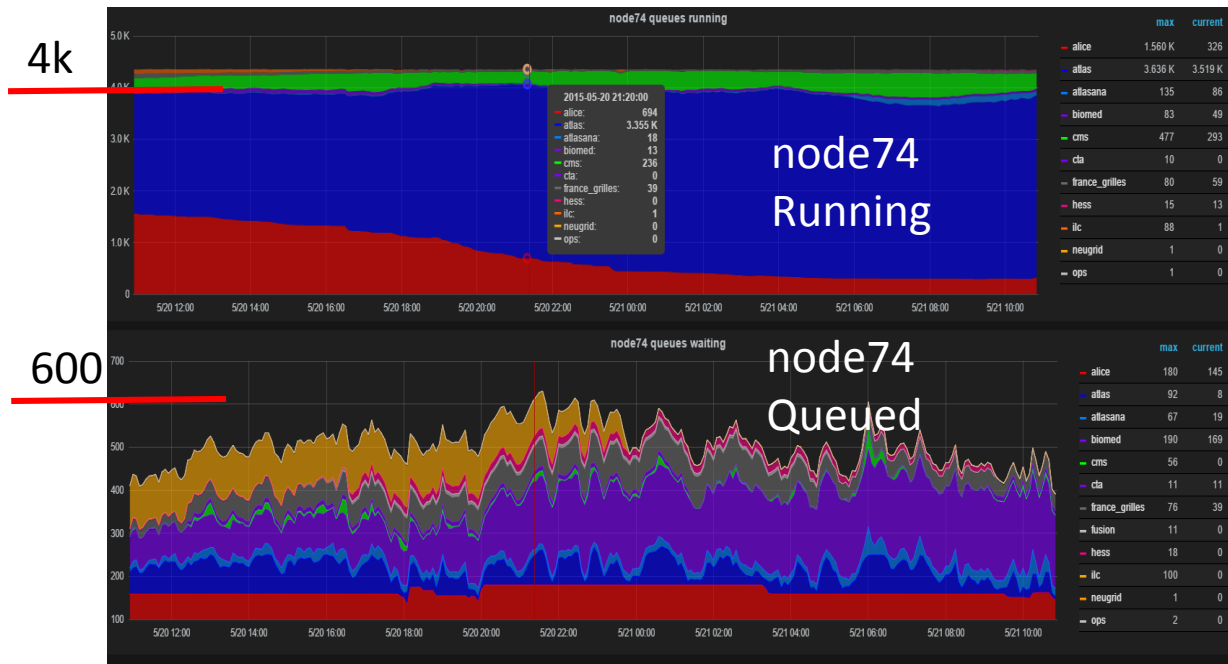
in **10 years** we got roughly a **x2000** factor...



# ...Evolution of Resources...

Jobs Queuing/Running on the 2 IRFU CE on 21/05/2015

2 Comp. Elem.  
(one supports  
multi-cores)  
**5200 slots.**





# ...*Evolution of Resource.*

Jobs Running on GRIF CE's on 02/06/2015.

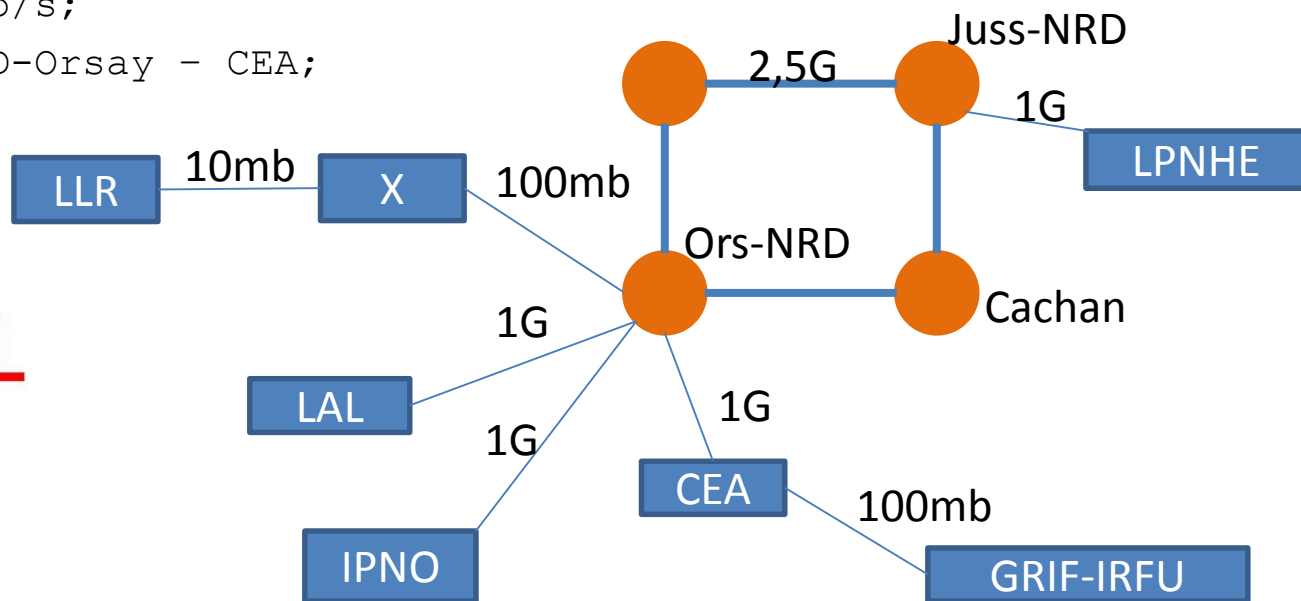




# Evolution of Network ...

- **2006:** original proposal by Renater;
- **q2/2007:** 10Gb/s (shared) LLR-LAL-CC;
- **2007:** APC connected at 1Gb/s;
- **2008:** 5Gb/s VLAN CC-GRIF;
- **2008:** LPNHE and IPNO conn. LHCOpn;
- **q1/2010:** LLR 10Gb/s via Saphir;
- **q2/2010:** LPNHE 10Gb/s;
- **2011:** 10Gb/s FN NRD-Orsay - CEA;
- **2011-2012:** LHCOne.

Our Starting Point

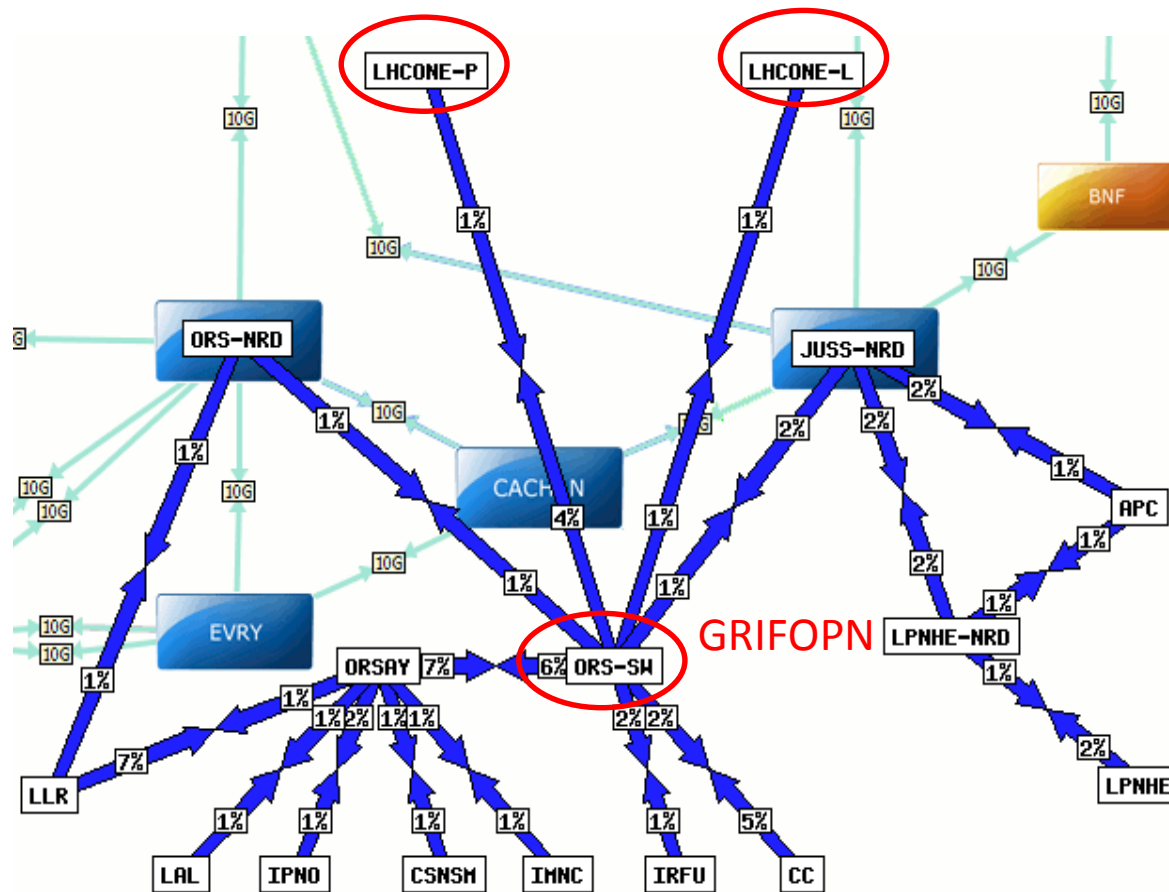






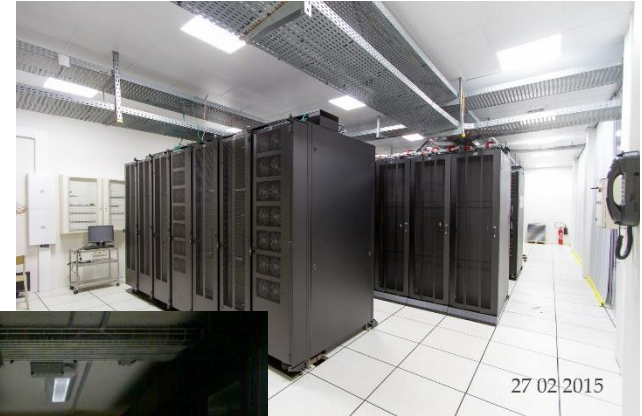
# ...Evolution of Network.

... and today:



makes GRIF sites closer to themselves and to the rest of WLCG.

# *Evolution of Infrastr.*



## Upgrade of machine rooms

- **2014:** new room at X (LLR);
- **2013:** room P2IO at Orsay (LAL, IPNO);
- **2010:** LPNHE new Room;
- **2009:** upgraded at IRFU.



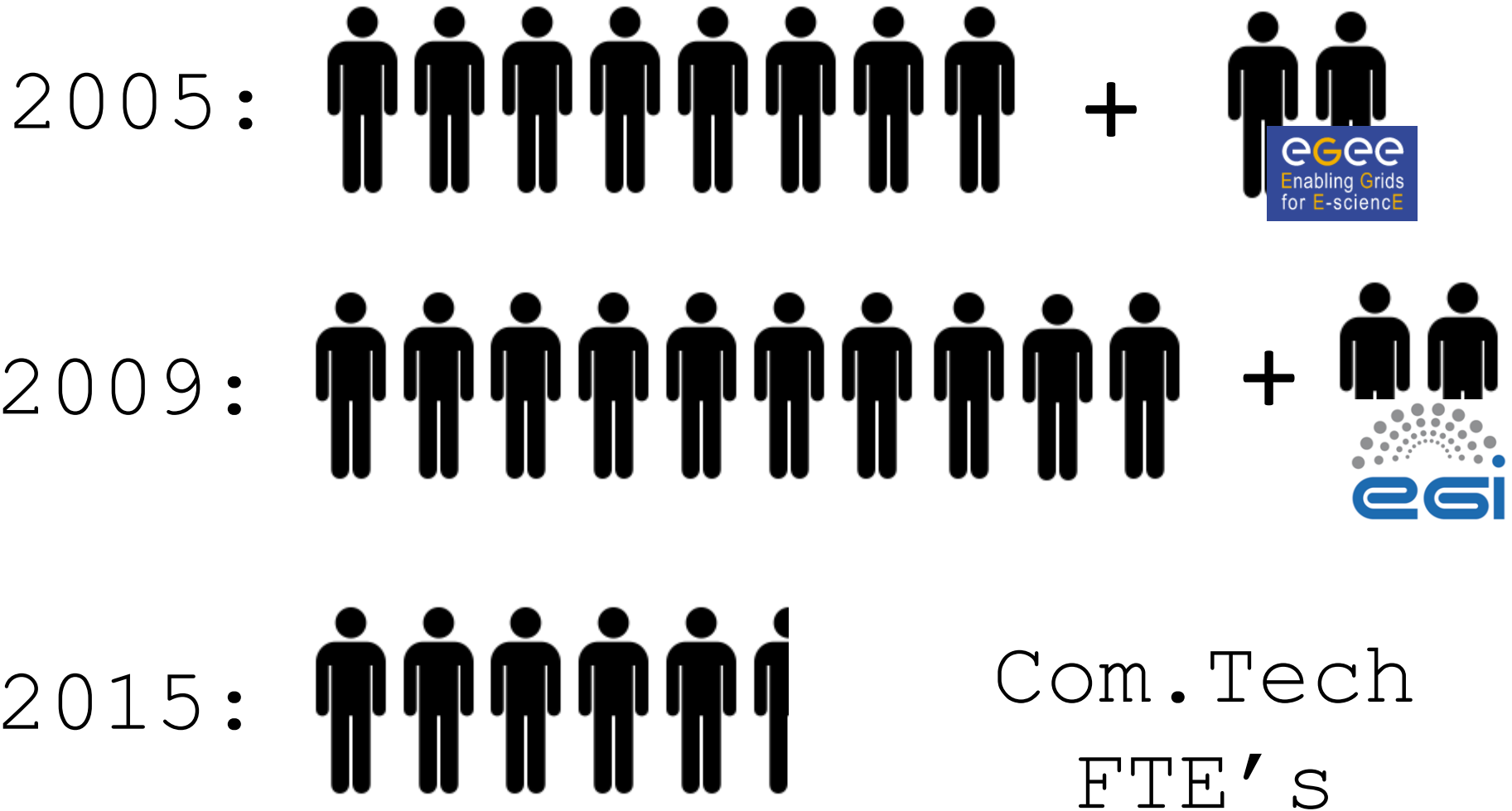
# ***Evolution of Projects.***

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- Computing Resource for all LHC experiments;
- supporting many other VO's : non LHC, non HEP and also non Phys.;
- active role in the grid community in France and EU;
- active role in SW/Middleware communities:  
Quattor, DPM, pilot site role for new MW tech. ...;
- non-grid projects: Cloud, HPC, GPGPU, CEPH....



# ~~In~~ Evolution of Manpower.



# ***Managing a Fed. Tier-2.***





# *One Site, One Team.*

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## *A distributed WLCG Tier-2 grouping 6 subsites the Paris Region*

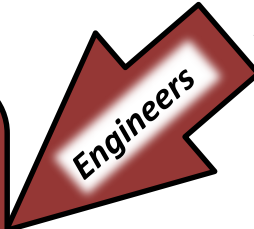
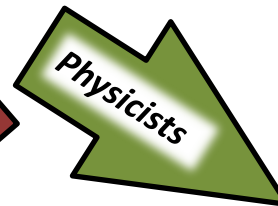
- seen as a Single site form WLCG/EGI point of view;
- each site maintaining its own services, resources, peculiarities.



*The fundamental principle is that resources are managed cooperatively.*



# Organization.



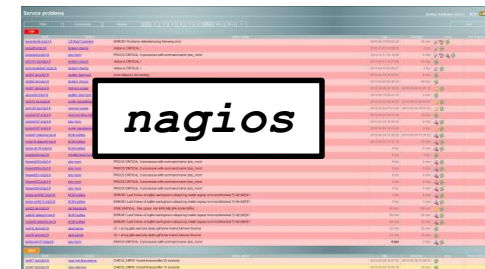
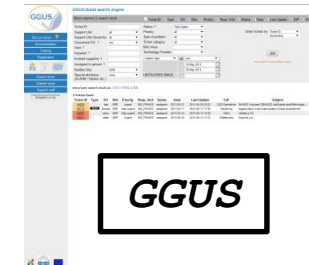
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2013





# Tech.Com. Everyday Life.

- Monthly F2F meetings
  - ❖ long/medium term planning;
  - ❖ administration problems;
- weekly videoconf
  - ❖ short term actions;
  - ❖ follow up of long terms actions;
- daily interaction
  - ❖ mailing list;
- daily Tour De Garde
  - ❖ scheduled on weekly basis.



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2013





# *Technical Tools.*

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- Shared configuration tool: Quattor
  - ❖ keeps configs homogeneous and centrally manageable.;
  - ❖ important contr. to Quattor Dev;
- monitoring infrastructure: nagios
  - ❖ standard probes + custom plugins + mails for critical alarms;
  - ❖ fundmental for cooperative mgmt;
- common Wiki on trac
  - ❖ common know-how repository;
- login intersite setup
  - ❖ connect each other site's machines;
  - ❖ sudo commands for debugging/fixing problems.

IRFU is now  
configured via  
Puppet



# ***Advantages...***

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- Summing up Resources to a considerable size
  - ❖ reference site at FR and international level;
  - ❖ aggregating projects, founding, etc...;
  
- aggregating a powerful Manpower force
  - ❖ a good pool of engineers with many different competences;
  - ❖ possible to be active in many projects and in many communities...;
  
- effectively exploiting Manpower
  - ❖ sharing administration load;
  - ❖ sharing know-how, experience, etc... .



# ***...and Some Inconvenient***

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- GRIF is often a peculiar animal
  - ❖ need to keep care to be compliant with MW and VO's tools;
  - ❖ institutional partners are sometimes difficult to interface.
  
- GRIF is itself a political object
  - ❖ 6 labs each one with its own peculiarities, views, priority;
  - ❖ we all aim to the same goals but this needs a bit of coordination;
  
- the ComTech is rather an Engineers round table
  - ❖ a lot of creative chaos... sometimes too much;
  - ❖ slightly less coherent, on the tech p.o.v., than more "traditional" sites.



# *Summing Up*

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- In 10 years GRIF has grown a lot
  - ❖ important resources size and powerful infrastructures available;
  - ❖ a very active subject: plenty of projects and activities;
  - ❖ an important tech team but with increasing manpower problems lately;
- positive experience with a Grid Fed.
  - ❖ a primary size site in EU both in terms of resources and technical activity;
  - ❖ efficiently exploiting the manpower;
  - ❖ a complex object to handle: both internally and externally.



# Thanks !

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