

Thursday February 26th, 2009

Overview of grid activities in France in relation to FKPPL



FKPPL Workshop



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FKPPL VO



Just 1 slide → see Soonwook's talk...

The setting up of FKPPL VO has been the first practical action done within the framework of the VO

Idea: Setup a grid environment to allow the students attending the Seoul e-science and Grid school to practice on a real, full scale system

Great success

The VO has been setup very fast with good coordination between KISTI and CC-IN2P3

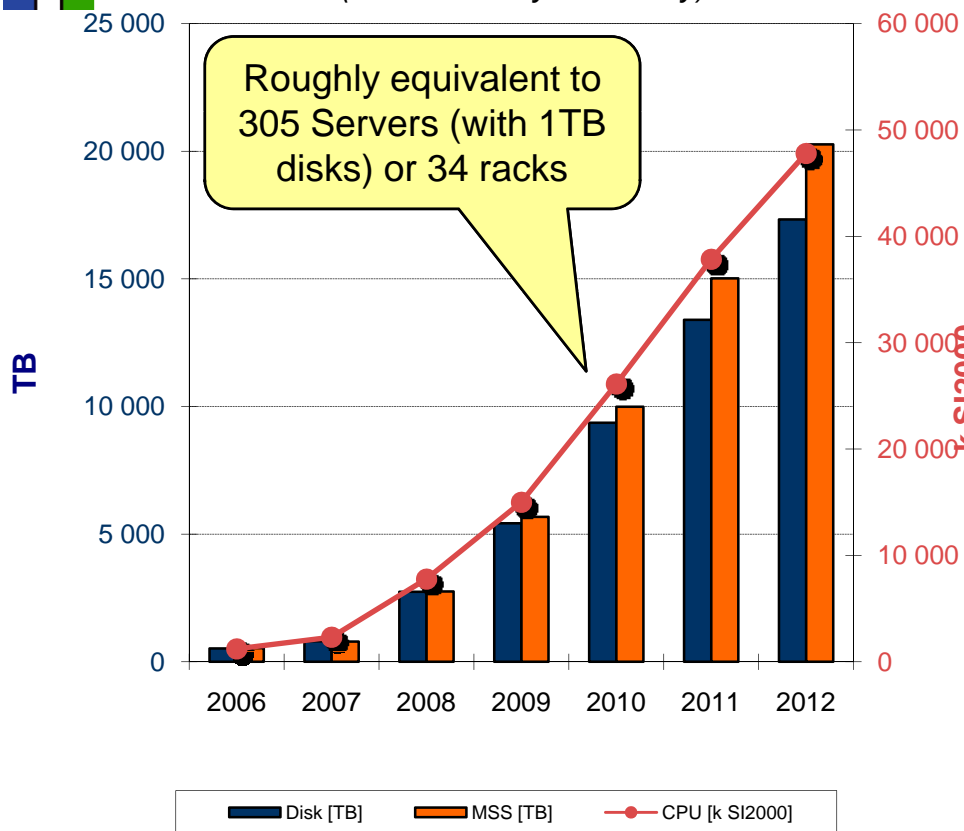
Decision: end of July, first job in October

And the VO is actually used :
5000 jobs in 5 months and > 9000 kSI2k.hours

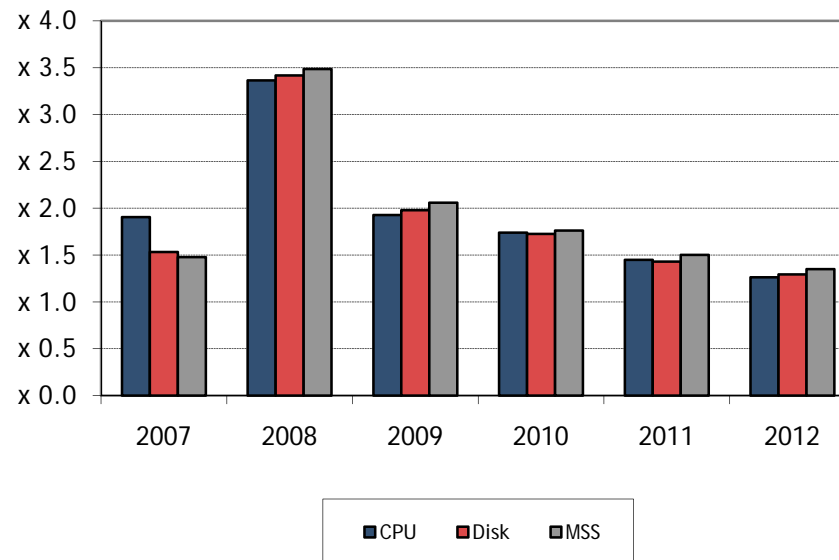
LCG Resources at CC-IN2P3



Resource Deployment
(Tier-1 + Analysis Facility)



Planned annual increase rate of the installed capacity
(Tier-1 + Analysis Facility)

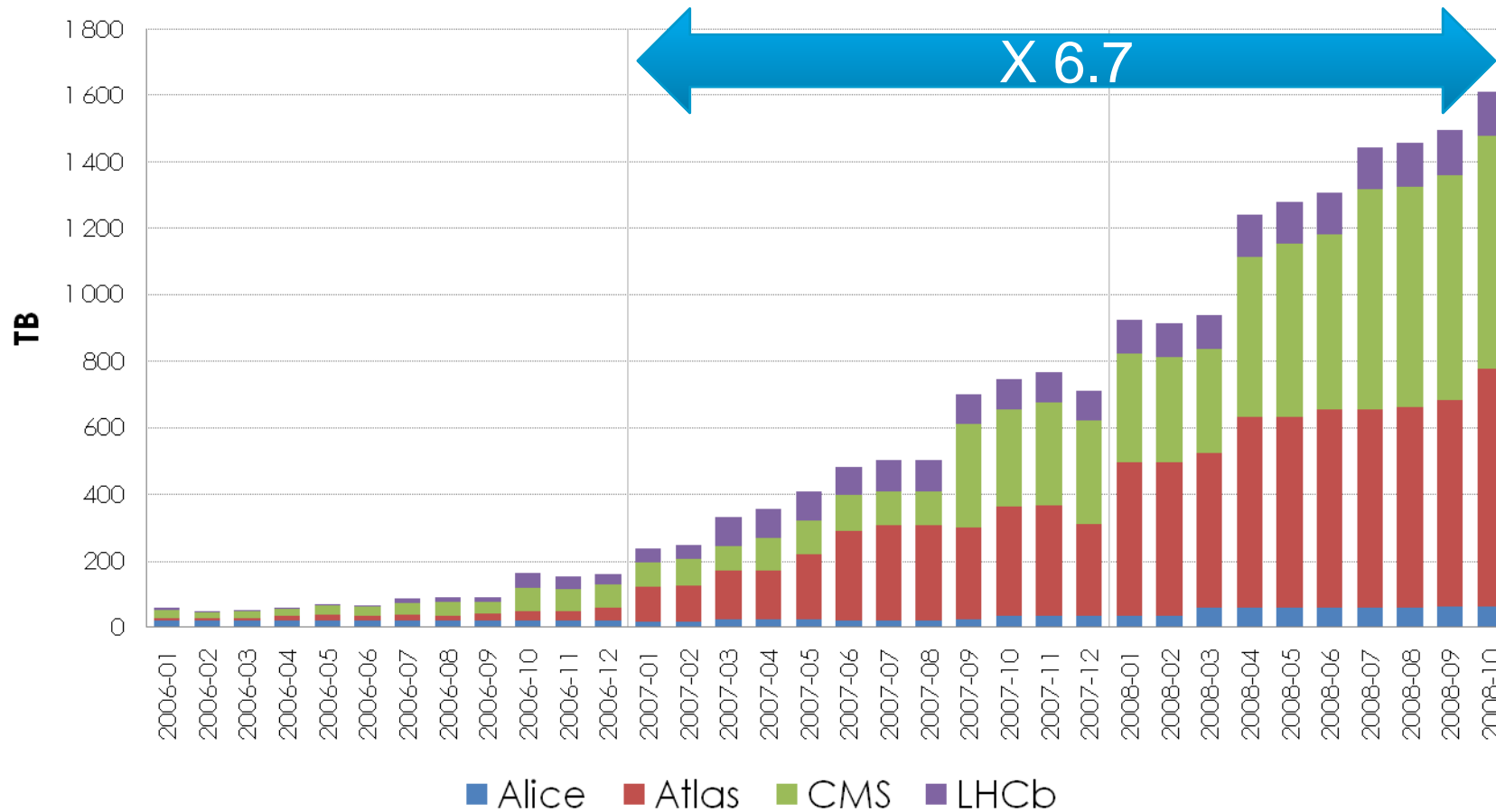




Disk storage deployment

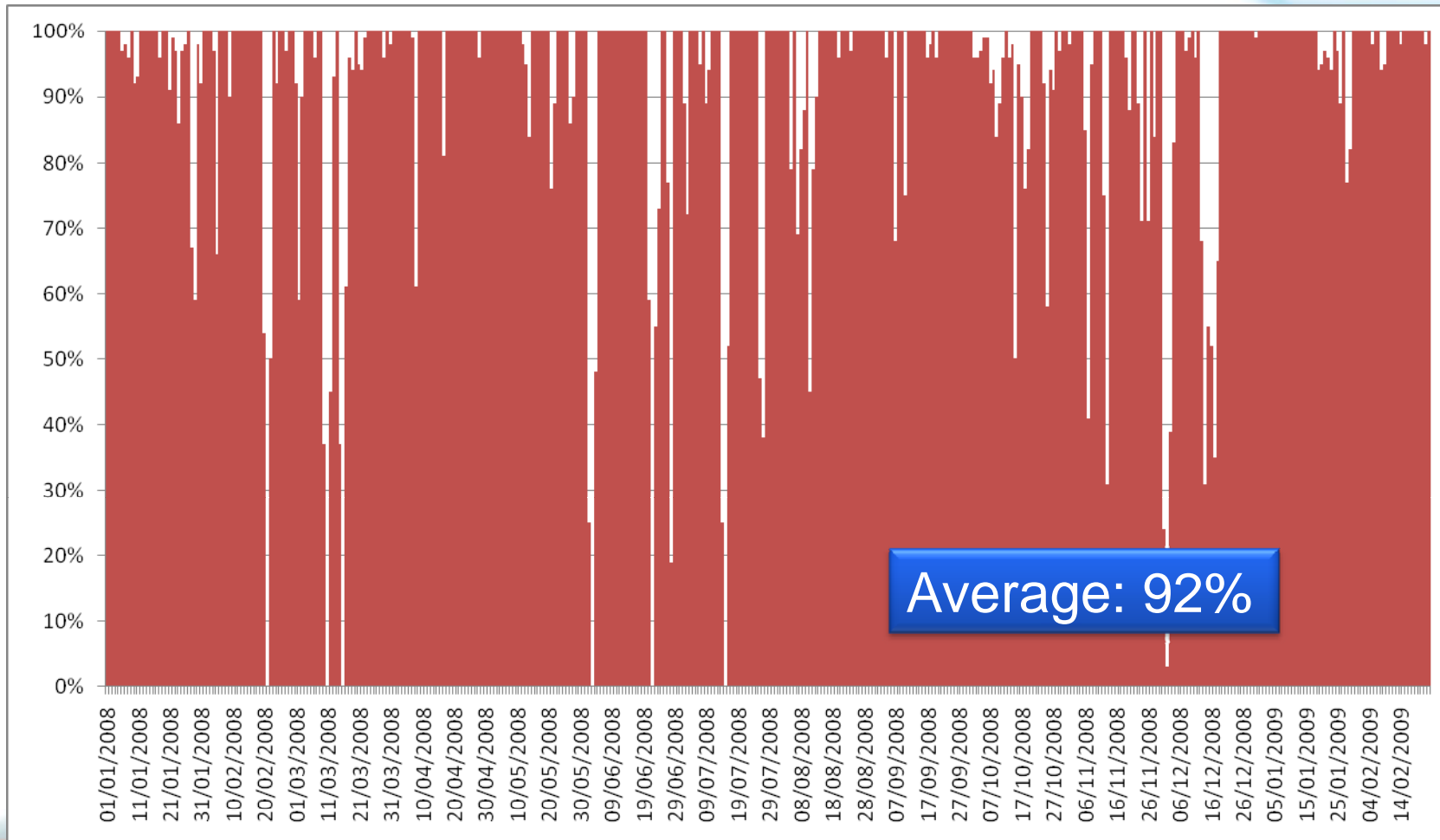


Evolution of disk allocation for LHC experiments



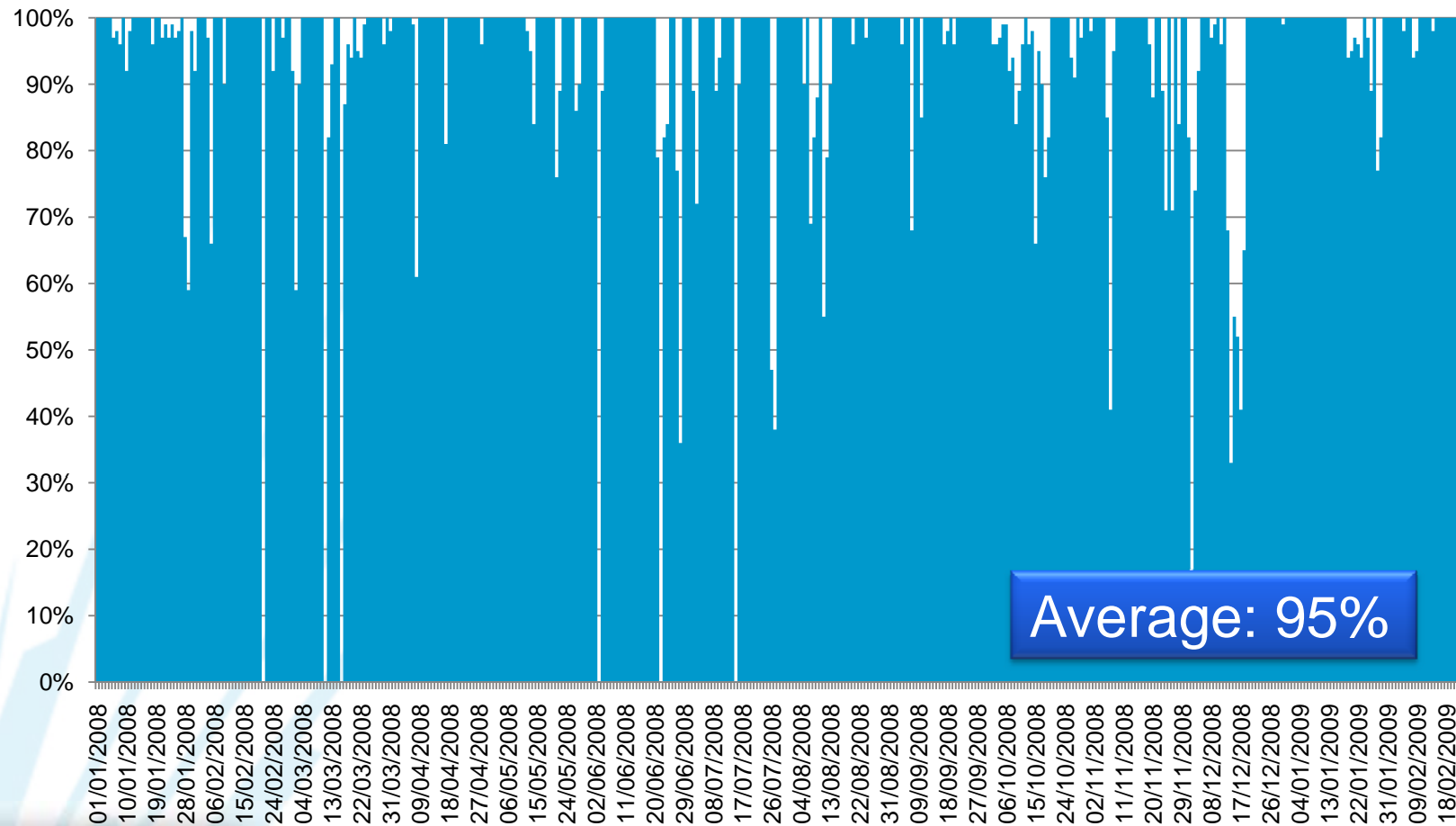


Availability





Reliability





Strengthening the system



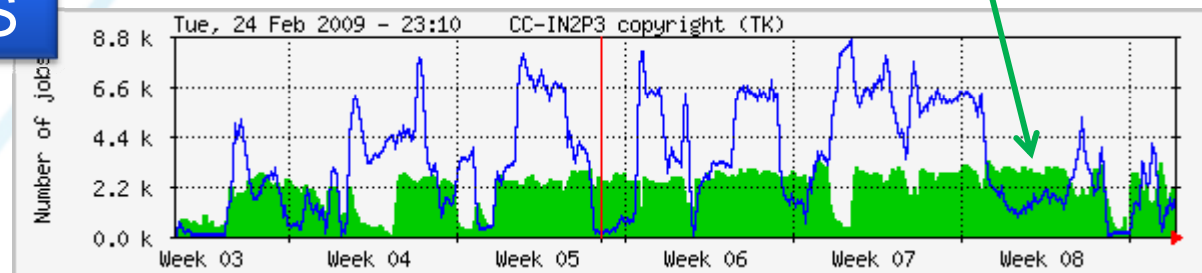
Considerable efforts have been invested in 2008 / 2009 in order to strengthen the LCG computing infrastructure

Every piece is important – A single flaky component will ruin all the system

→ We start to collect the fruits of this

3000 jobs running in //

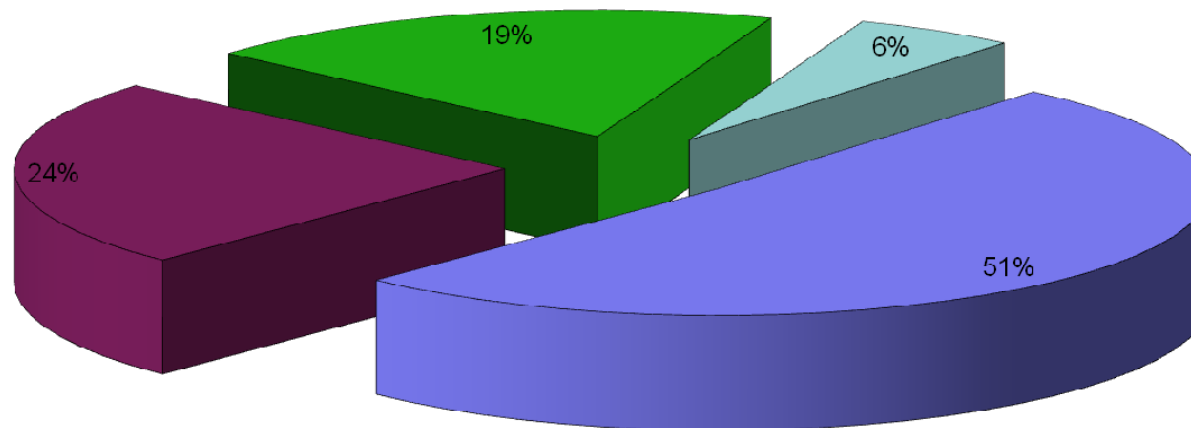
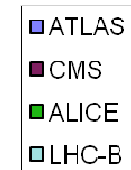
ATLAS



The weak point is clearly related to the SRM / dcache system which handles the data storage

CPU Sharing between LHC Experiments in 2008

LHC CPU consumption in 2008: > 17 M kSI2k.hours



CC-IN2P3 is committed to collaborate with KISTI in order to develop the ALICE Tier-2

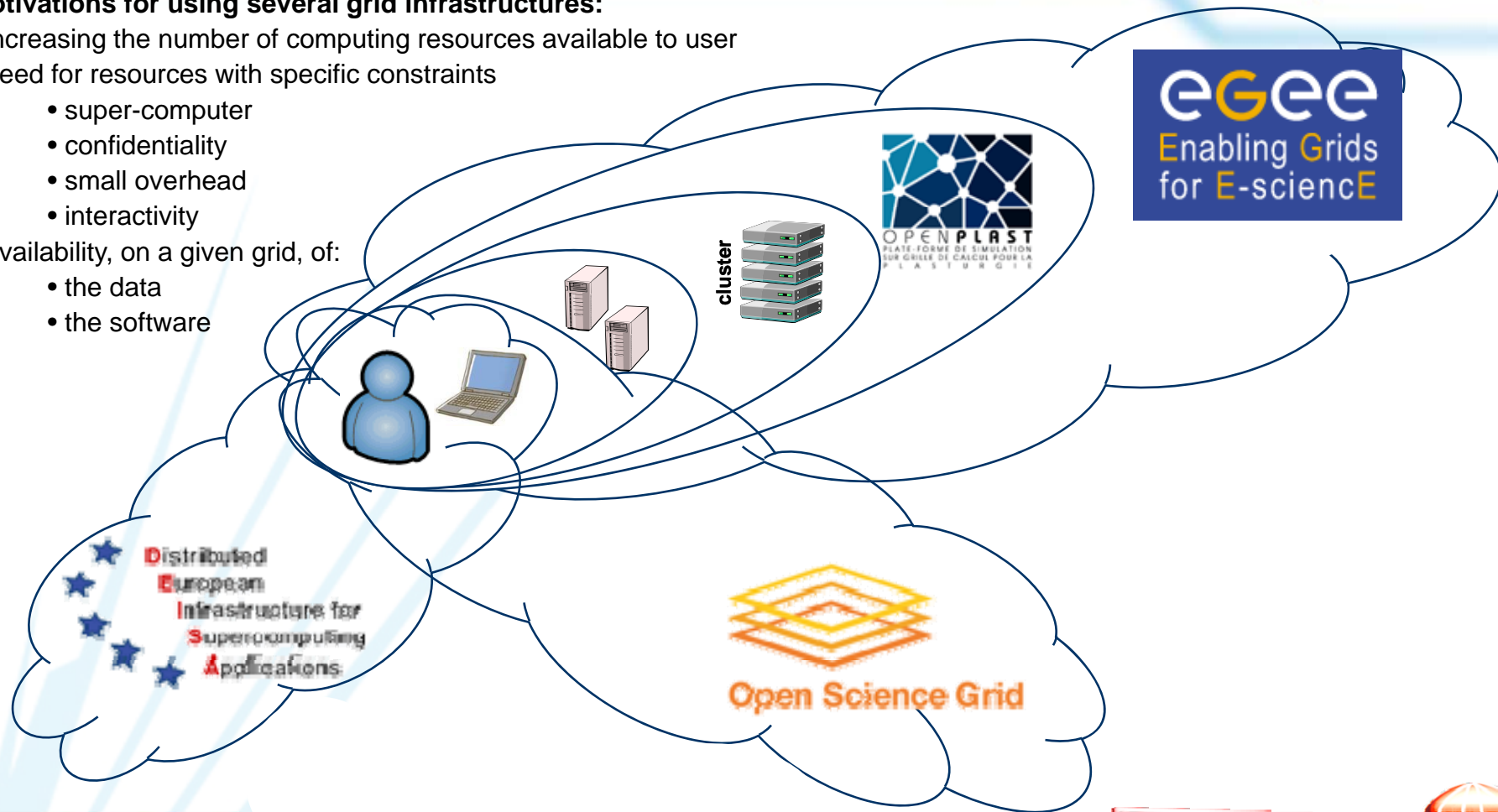


Work on interoperability - JSAGA



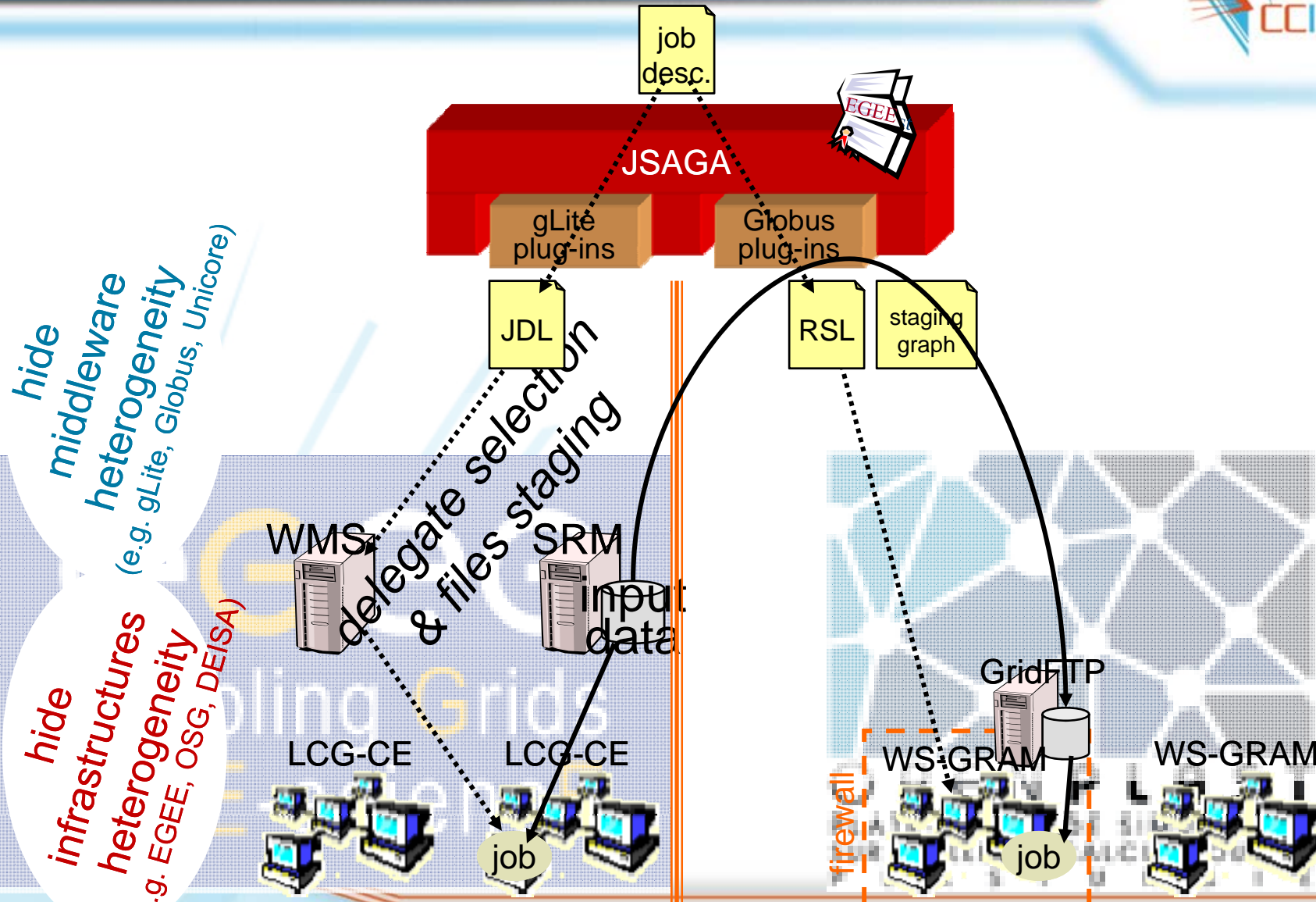
Motivations for using several grid infrastructures:

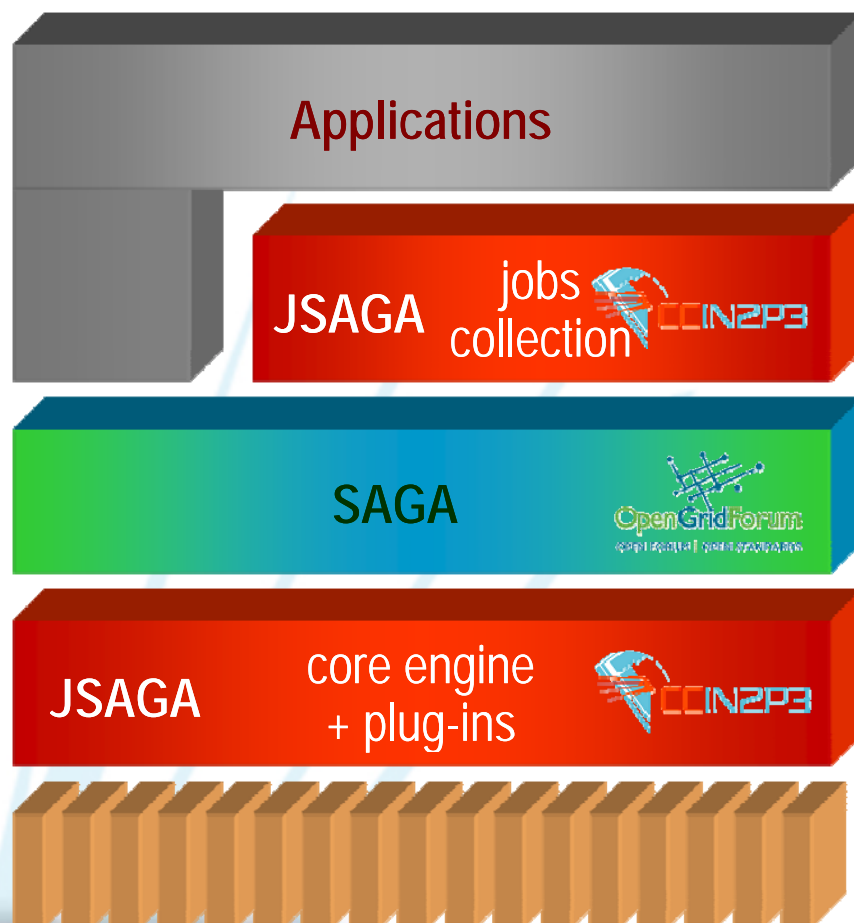
- increasing the number of computing resources available to user
- need for resources with specific constraints
 - super-computer
 - confidentiality
 - small overhead
 - interactivity
- availability, on a given grid, of:
 - the data
 - the software





JSAGA





- Ready-to-use software, adapted to targeted scientific field

end user

- Hide heterogeneity between grid infrastructures

application developer

- Hide heterogeneity between middlewares

- As many interfaces as ways to implement each functionality

plug-ins developer

- As many interfaces as used technologies

▶ A JSAGA application



■ JUX is a **file explorer** designed to be **independent of**

- Operating System
 - tested on Windows, Scientific Linux, Ubuntu, Mac
 - Data management protocol
 - tested with gsiftp, srb, irods, http, https, sftp, zip, (srm)
 - Security mechanism
 - tested with GSI, VOMS, Login/Password, X509, SSH
- } full java code
- } JSAGA

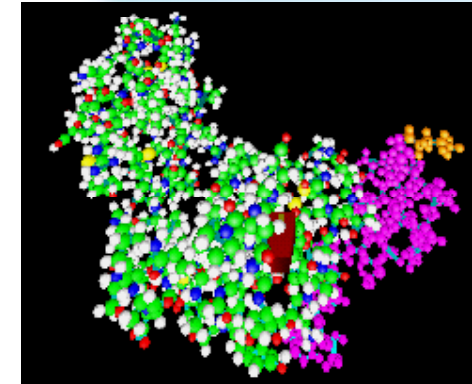
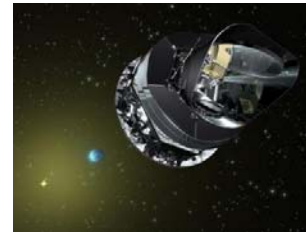
For instance, it is possible to interactively handle files stored in SRM / dcache from my own laptop and to move them to another data storage system managed by another Grid middleware

▶ Accessing parallel computer through the EGEE middleware



Some applications need to run on parallel computer:

- Molecular Dynamics within WISDOM
- Lattice QCD
- Some astroparticles applications
- ...



EGEE middleware has been mainly designed to address jobs to serial computer farms

Using parallel computers would require to be able to characterize the parallel nodes within the Information System

Very relevant in the framework of FKPPL



Parallel computers at CC-IN2P3



CC-IN2P3 operates a small parallel farm:
232 CPU-cores connected in Gigabit Ethernet

This farm will be upgraded this year to
~1000 CPU cores
Low latency network (probably Infiniband)

Due to modern CPU design constraints (many cores per chip), using parallelism even in HEP applications will become unavoidable

I consider that gaining expertise in this area is crucial for CC-IN2P3

KISTI has this expertise !



Analysis interactive platform



This year CC-IN2P3 will build a powerful analysis interactive platform

- Fast event filtering - Typically read and process AOD at 1 kHz for 50 users in parallel
- Root analysis

The architecture will be based on PROOF + probably xrootd, but other storage system will be considered

A prototype will be setup in the coming weeks with existing hardware in order to validate the architecture

Then we will build a full scale system for LHC startup



Analysis interactive platform



ALICE is very enthusiastic to get such a system at CC-IN2P3 which will complement the CERN Analysis Facility

→ We will easily get user applications to test the system

Also in contact with René Brun and PROOF development team in order to setup something really powerful
Balance between RAM – SSD and HDD

This is something that I propose to consider within the framework of FKPPL