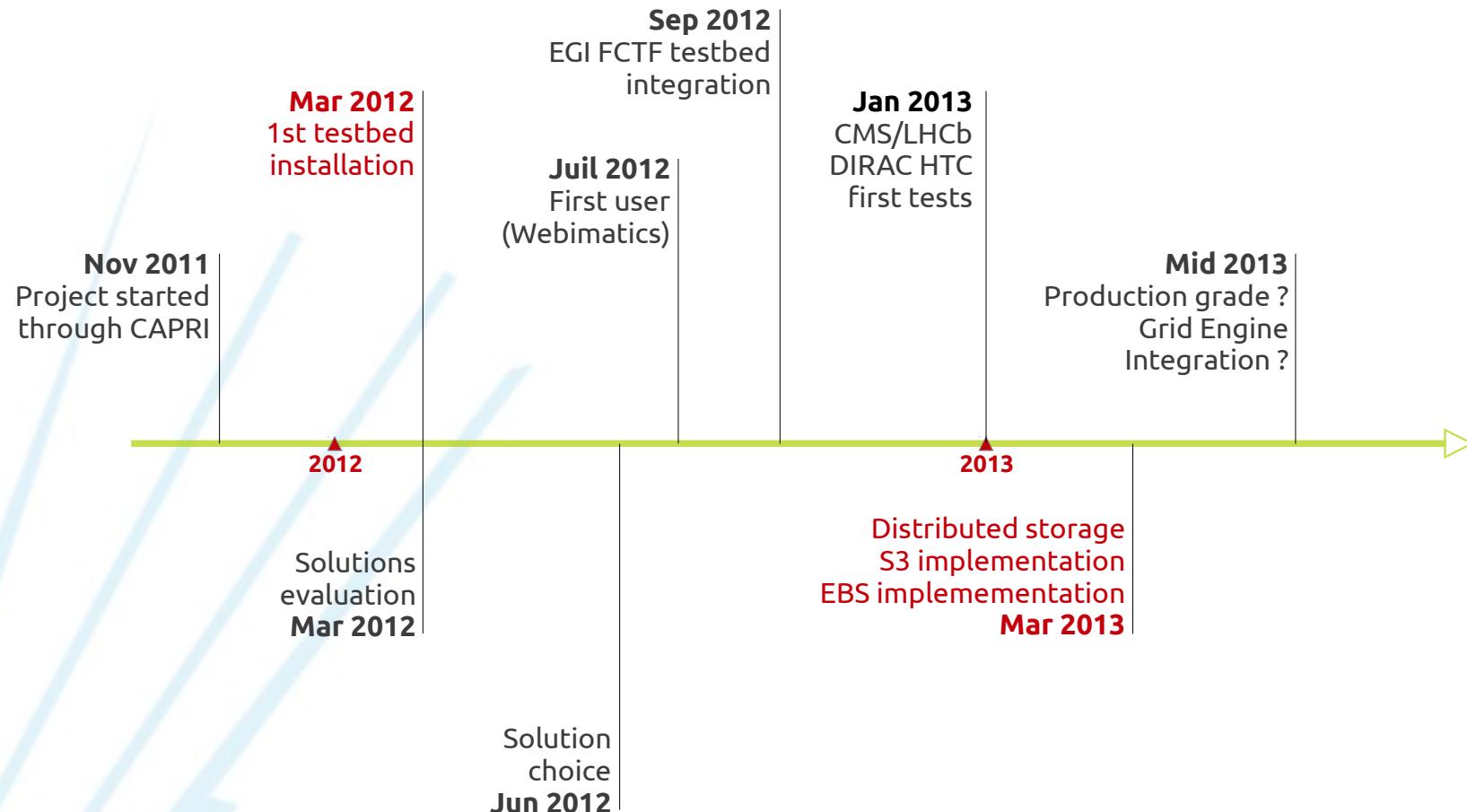


# CC-IN2P3 cloud computing (IAAS) status

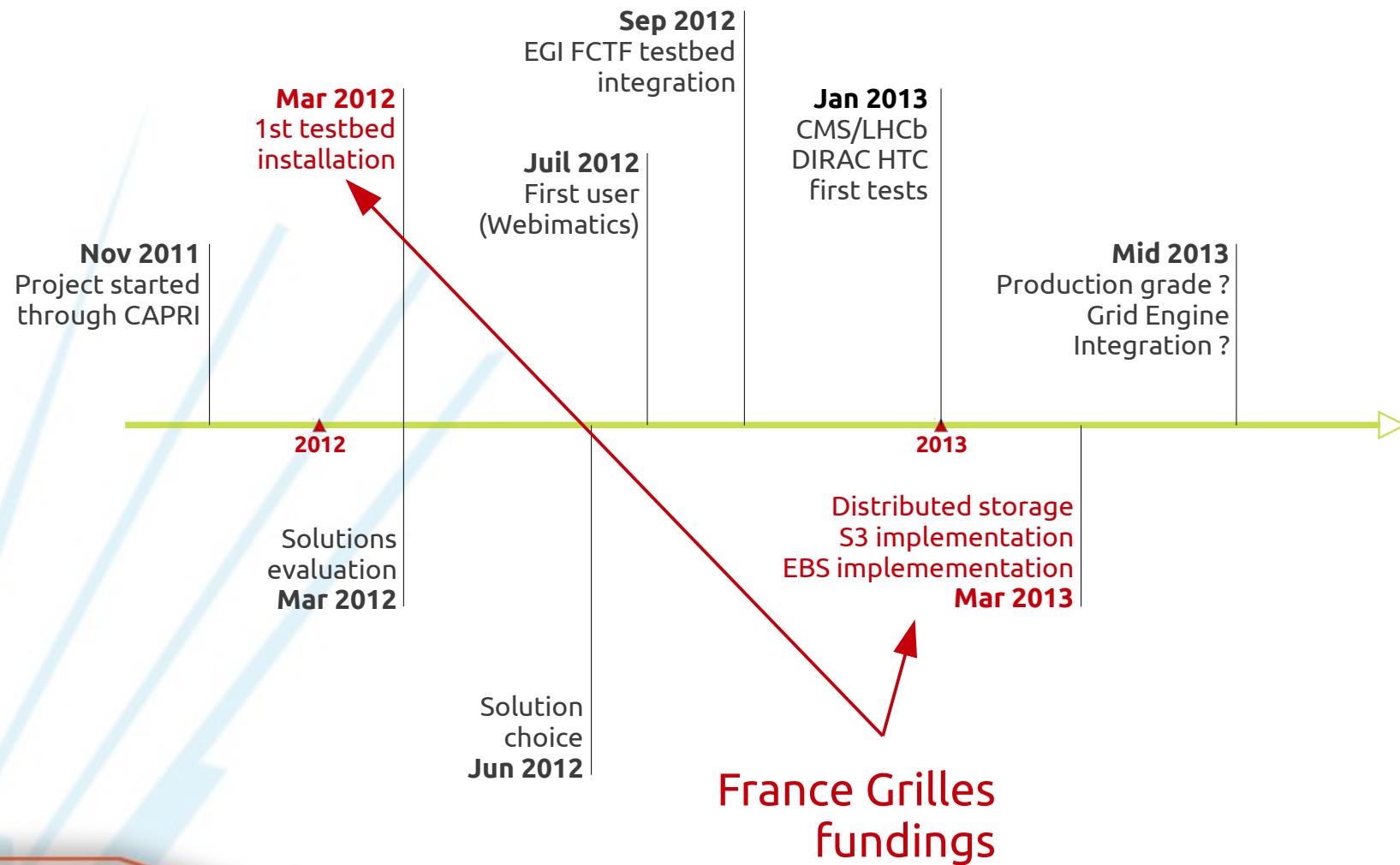
Atelier Operations France-Grilles  
Mattieu Puel – Novembre 2012



# Timeline



# Timeline





# Current platform (hardware)



16 DELL Poweredge C6100 hosts :

2 Xeon 24cores X5675 @ 3.07GHz

96GB RAM

2TB raid 10 local storage (4 SAS 7.2krpm)

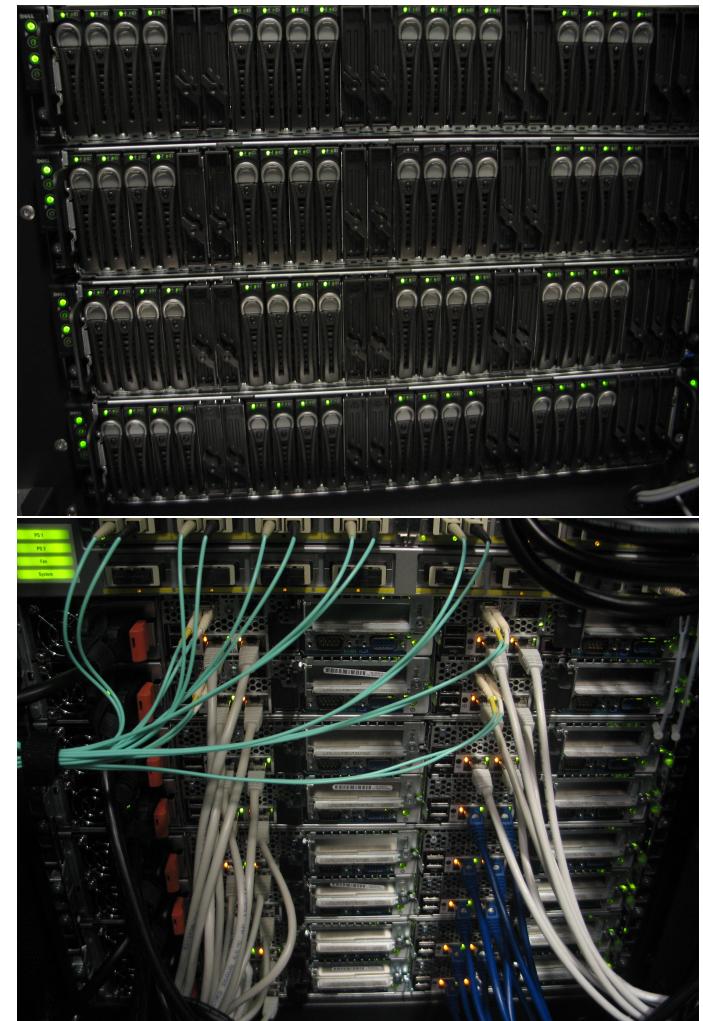
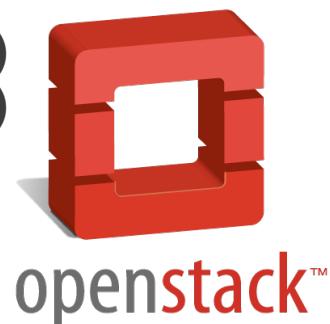
Total infrastructure :

- 400 cores
- 1.5TB RAM
- 32TB disk
- 32Gbps network

→ ~400 VMs m1.medium (1c, 4GB RAM, 50GB disque)

10Gbps NICs with NPAR/SR-IOv technologies

Essex (2012.1)  
Folsom (2012.2)



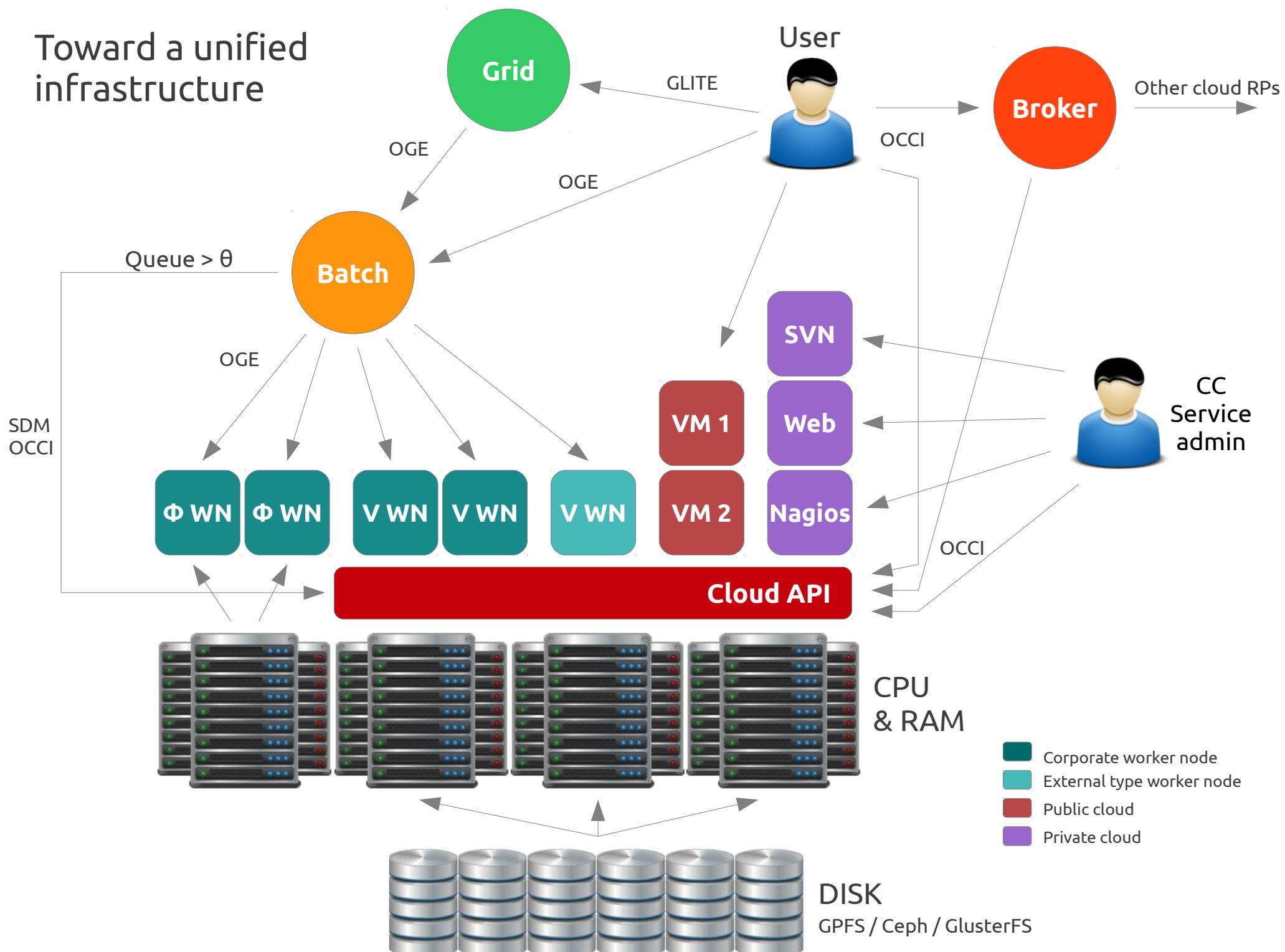
# Features



## Currently available :

- VOMS authentication
- EC2/Nova API/OCCI
- Network access policies (aka secgroups / network acls)
- New images Upload
- Start/stop/pause/suspend instances
- Snapshots
- VLAN isolation
- Floating (public) Ips
- VNC graphic console access
- Federation features (authn/z, accounting...)

# Toward a unified infrastructure





# Use cases



## ■ Corporate worker node

- Support for multiple specific environments (SL5/6, python dists, ...)

## ■ External worker node (N users/3 groups)

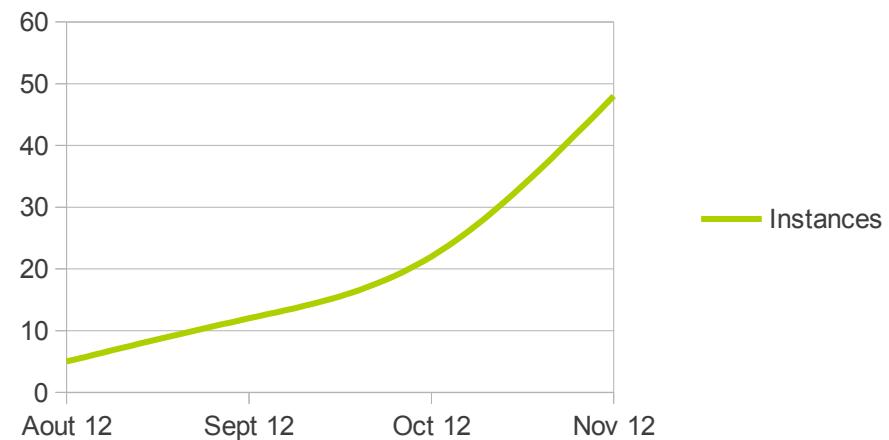
- DIRAC
- Simple HTC cases (CMS, LHCb)
- EGI FCTF testbed

## ■ Public cloud (11 users/9 groups)

- IRT Bioaster
- Webimatics
- Academic/institutional

## ■ Private cloud (26 users/2 groups)

- eTRIKS
- Test servers
- Aims at deploying production services

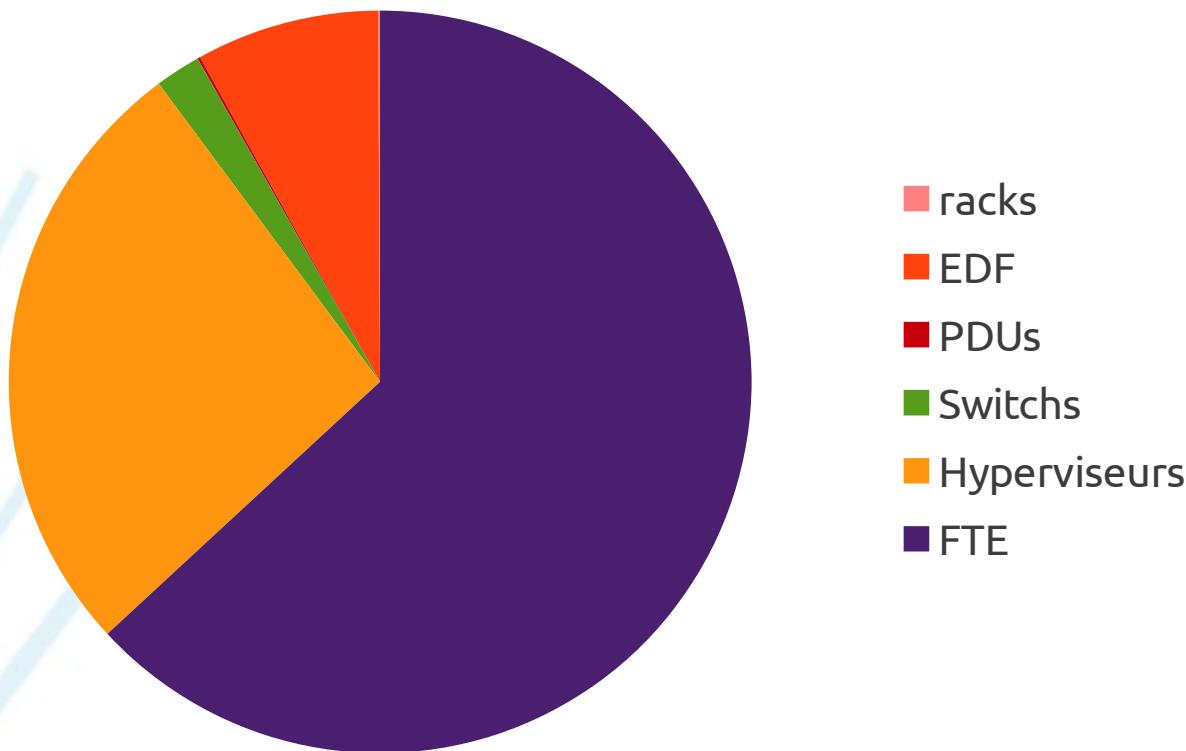


# Use cases (federation projects)



- EGI Fedcloud (BSC, CC-IN2P3, CESGA, CESNET, Cyfronet, FZ Jülich, GRIF, GRNET, GWDG, INFN, KTH, SARA, TCD, OeRC, STFC, SZTAKI)
- France Grille (LAL, IRIT, CC...)
- IRT Bioaster (Institut Pasteur/CC)
- Ibercloud ?
- EU-Brazil ?

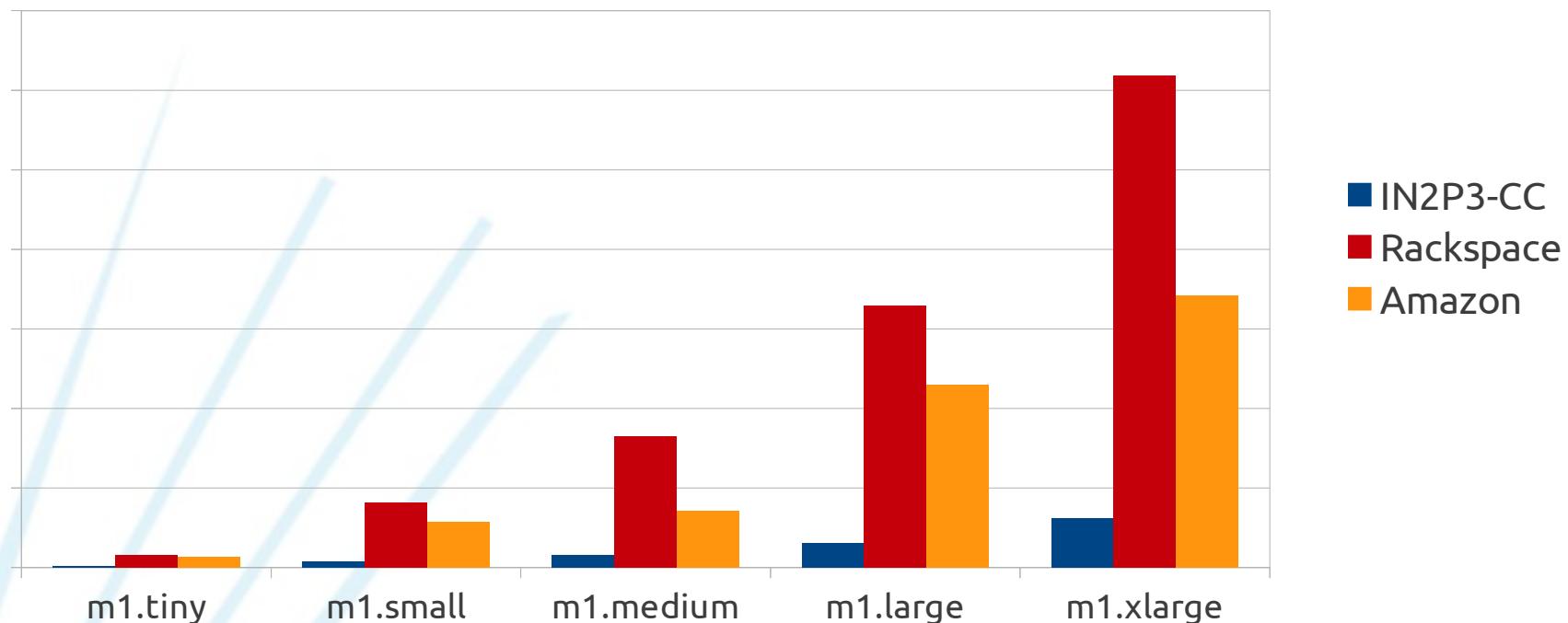
## Cost per sector



# Economic model



## Compute costs and prices



Some hypothesis : Linux VMs, cost based on RAM usage



# What's next



## Incoming features :

- Dynamic block assignment (Cinder, EBS, 24TB)
- Live migration
- Storage cloud (S3/CDMI, 24TB)
- Batch integration

## Next goals :

- Reuse of worker nodes, upgrade the platform to 1000~10k Vms
- IN2P3-CC private cloud, ready for production ?
- IN2P3 public cloud (compute/storage), FG, other institutions ?
- Keep on integrating federations
- Virtualized HTC for some simple use cases (CernVM/FS/dcache)
- Network as a service (Quantum)

# Thanks !



<b>Project</b>	CC-IN2P3 IAAS cloud
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<b>Support team</b>	Yonny Cardenas Sébastien Gadrat Rachid Lemrani Sinikka Loikkanen Aresh Vedae