



IPHC T2 Status and evolution

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Alice T1-T2 Workshop

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Summary

- Site history
- Financing and partnerships
- Infrastructure
- Involved people
- Grid infrastructure and expertise
- Cloud infrastructure and expertise
- Dirac
- Supported VOs
- Alice at IPHC
- Questions and comments





Site history

More than 10 years of experience

- 2005 : grid project start at IPHC
- 2008 : site certified as T2 for **Alice** and CMS
- 2009 / 2010 : opening to community outside LHC
- 2012 / 2013 : Starting of the Cloud project
- 2013 : LHCONE network connection
- 2013 : Collaboration with the university's HPC center
- 2014 : Steering committee
- 2015 : EGI certified cloud



Financing and partnerships

Financing

- Laboratory
- Resources sharing (University, lab groups)
- LCG France
- France Grilles
- CPER 2008 – 2012
- CPER Alsacalcul 2015 – 2020

Partnerships

- HPC center of the University of Strasbourg
- France Grilles
- Institut Français de Bioinformatique
- EGI (Cloud, grid)
- WLCG (CMS, ALICE)

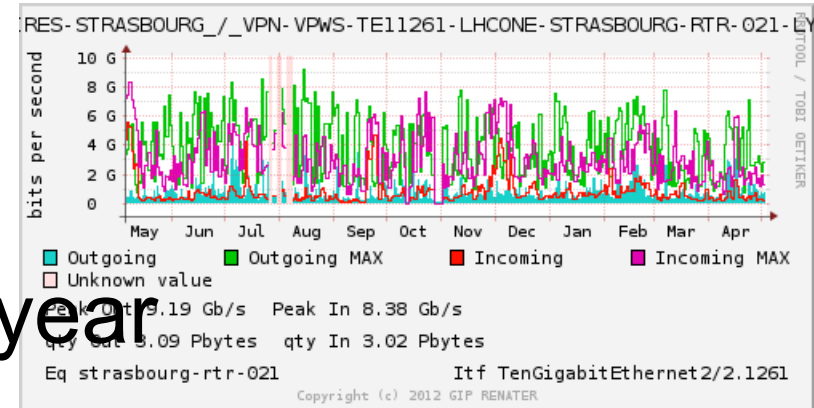


- Machine Room
 - 100 m² (occupancy 60%)
 - Inert gas fire suppression system
 - Video control and secure access
- Power supply and cooling
 - 150kVA UPS (expandable to 250 kVA)
 - 2x100kW cooling groups (free room and connections for a third one)



Infrastructure : network

- 10 Gb/s Internet connection (RENATER, LHCONe)
- 80 Gb/s local backbone
- IPv6 support planned for this year
- Internet connection is provided by Osiris (Metropolitan Network managed by the University)
- Osiris plans to upgrade to 80Gb/s or even 100Gb/s (RENATER is already at 100Gb/s)





Involved people

- 7 people from our computer team
- 3.1 FTE
- Expertise :
 - Grille & Cloud
 - Distributed storage
 - Network and infrastructures
 - Automated installation and upgrades
 - Supervision
 - GPU and parallel computing
 - System and application security



Grid infrastructure and expertise

Resources

- 2400 Xeon cores (~ 30000 HS06) and 1.8 PB of disk storage (mostly DPM, Xrootd, a bit of iRODS and eventually EOS)
- UMD/EMI middleware, direct PBS access for local users
- More than 99% of availability
- 80%-90% of resources for WLCG

Projects and responsibilities

- Planned site growth : about +20 % in 2018
- Local users training to DIRAC
- Service to redirect overflow to university's computing center
- Technical coordination of LCG France (2011 – 2013)
- Technical coordination France Grille (since 2014, ongoing)
- Partnership with EGI, France Grilles and WLCG
- **This** meeting



Cloud infrastructure and expertise

Resources

- Recent host machines (up to 48 cores and 512 GB of RAM)
- ~ 500 cores total, 3 TB of RAM and 40 TB of disk
- > 1 million cpu hours provided in 2016
- Available APIs: OpenStack, OCCI and EC2
- Availability > 99 %

Projects and responsibilities

- Supervising probes developpement for France Grilles
- HEPIX Benchmarking Group involvement
- Work on Docker integration
- Work on infrastructure securiy
- Collaboration Hadoop / Spark with the university's computing center
- Member of the Technical Coordination Board EGI (Cloud)
- Partnership with EGI, France Grilles, IFB et WLCG



Dirac access fully supported for both grid and cloud

- Common interface
- Easy to setup for users





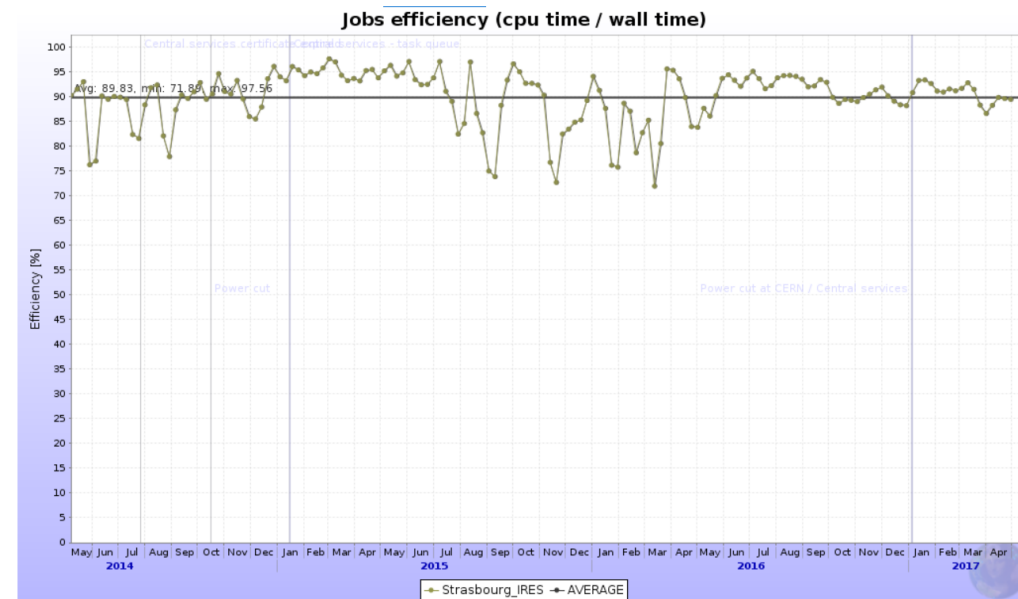
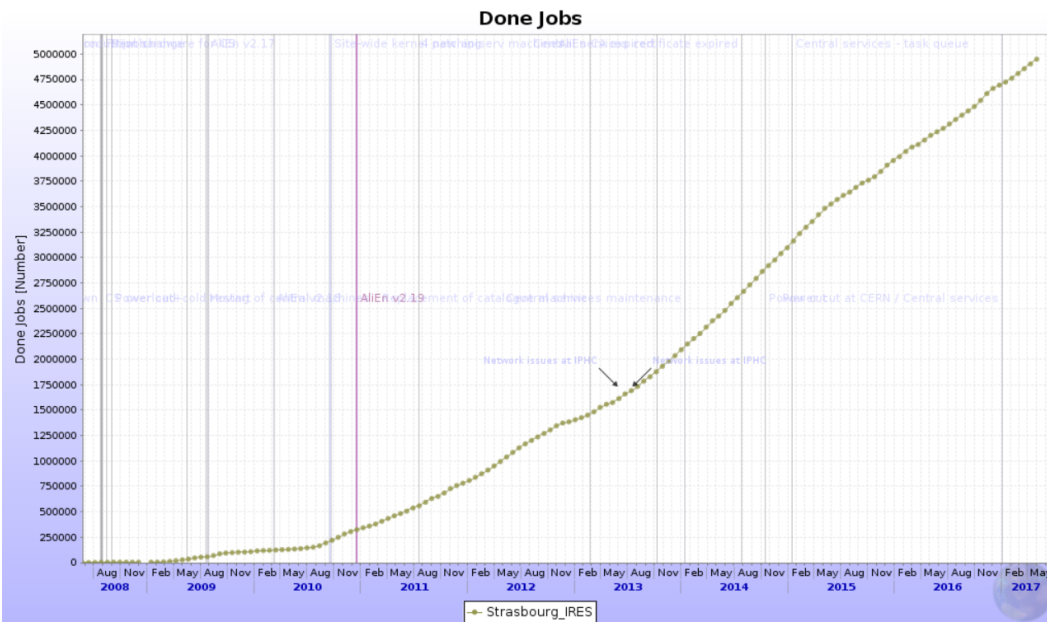
Supported VOs

- [alice](#)
- [belle](#)
- [biomed](#)
- [cms](#)
- [dteam](#)
- [esr](#)
- [fedcoud.egi.eu](#)
- [ops](#)
- [vo.agata.org](#)
- [vo.complex-systems.eu](#)
- [vo.elixir.eu](#)
- [vo.formation.idgrilles.fr](#)
- [vo.france-grilles.fr](#)
- [vo.grand-est.fr](#)
- [vo.sbg.in2p3.fr](#)
- [vo.nbis.se](#)



Alice at IPHC

- Site name is Strasbourg_IRES
- About 1.4% of Alice's T2 CPU
- No use of the local cloud yet. Are you interested?





- Alice VOBOX
- Storage
 - Native Xrootd on quite old machines
- EOS installation on new hardware (160TB)
 - Automated scripts fails
 - Quattor moved yum.repo.d
 - Documentation is scarce: even what to answer to the scripts questions (eg. : there seems to be some naming conventions, wasn't explicit).
 - Manual installation problems
 - Xrootd-alicetokenacc
 - Xrootd version 3 vs 4 ?
 - Puppet / Quattor ?
 - Still a work in progress



Questions and comments

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