RDIG ALICE computing report

Galina Shabratova
JINR, Dubna
Eygene Ryabinkin
RRC-KI, Moscow
Andrey Zarochentsev
SPbSU, St. Petersburg

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Agenda

1. General –> Galina
   1. management
   2. recourses
   3. contribution to ALICE
2. Questions and remarks from RDIG Tier2s sysadmins -> Andrey
3. News about Russian Tier-1 -> Eygene

General

Management of distributed Tier2 -> today there are 7 working sites of RDIG (**R**ussian **D**ata **I**ntensive **G**rid) are supporting ALICE activity

Representative G.Shabratova & Technical coordinator A. Zarochentsev

IHEP
V.Kotlyar

JINR
V.Mitsyn

RRC-KI
I.Tkachenko

Troitsk
L.Stepanova

ITEP
Y.Lyublev

PNPI
A.Kiryanovv

SPbSU
A.Zarochentsev

General

Resources and operation of these sites
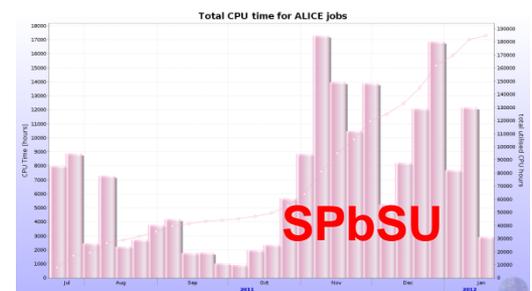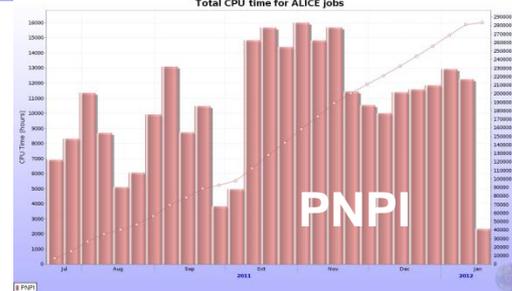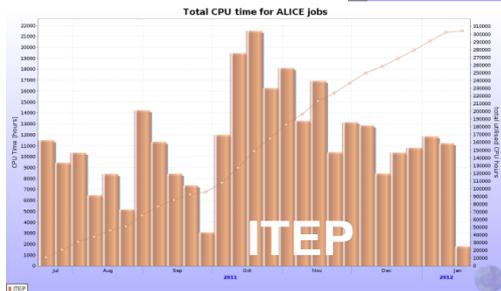
In **2011**(Jan-Dec) RDIG CPUs for ALICE:
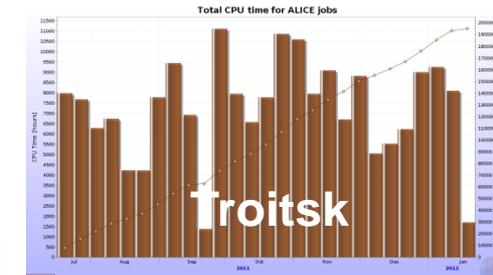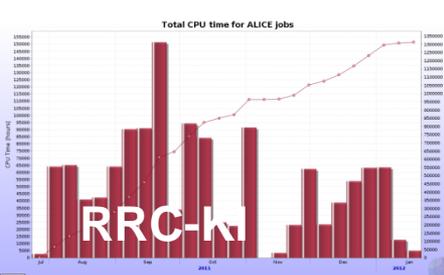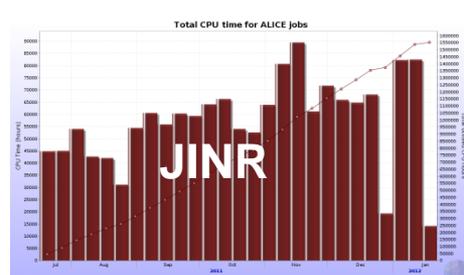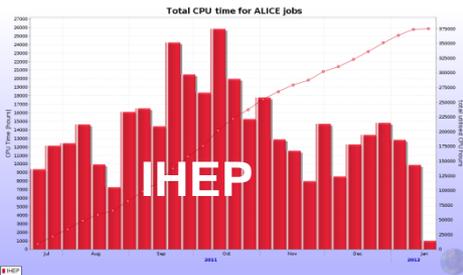
> 63.6 MHS06-hours

Today

 RDIG DISK for ALICE: <u>allocated</u> 954 TB

<u>used</u> 703.74 TB (~74%)

It is planed in **2012** – 1.09 PB

Total CPU time for ALICE jobs [hours]

Troitsk 4.6%
SPbSU 4.4%
IHEP 8,9%
ITEP 7.3%
KI-31.3%
JINR-36.8%
PNPI 6.7%

IHEP

JINR

RRC-KI

Troitsk

ITEP

PNPI

SPbSU

General

VO jobs running on RDIG farms
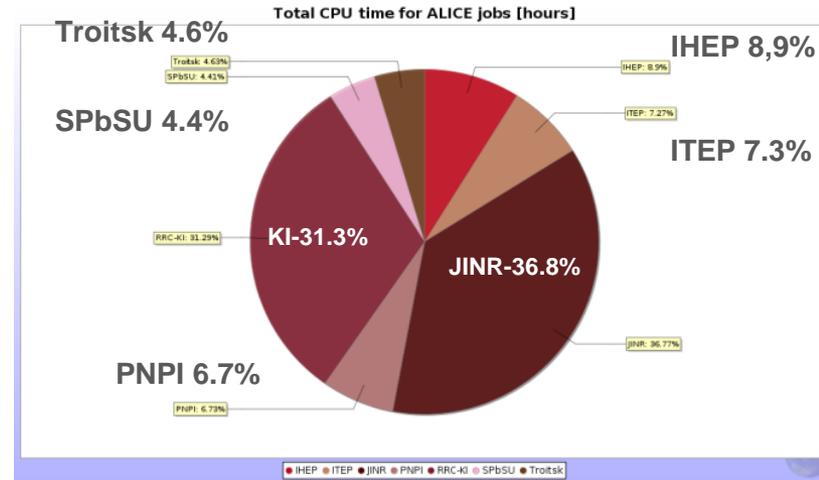
Share RDIG with other VOs :

CPU: 63,671,112 75,868,556 45,644,612 34,959,764

      (28.9%)   (34.5%)   (20.7%)   (15.9%) <u>HS06-hours</u>

DISK : 853TB   959 TB   1383 TB   137 TB

      (25.6%)   (28.8%)   (41.5%)   (4.1%)

     <u>ALICE</u>   <u>ATLAS</u>   <u>CMS</u>   <u>LHCb</u>

Contribution to whole ALICE: req. 8.8% of ALICE resources

CPU:

Jan-Oct 2011

9.23%

Last 6 months

5.88%
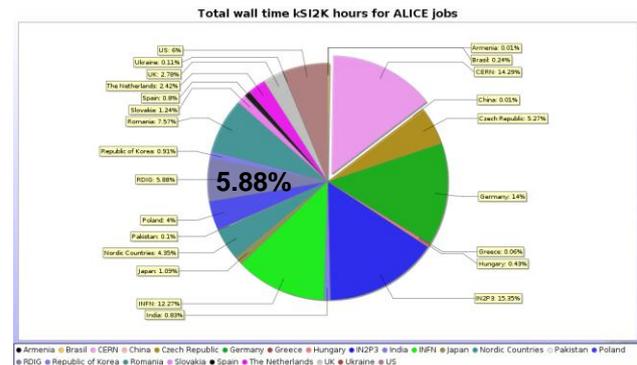
DISK: Today allocated 0.954/14.52PB = 6.57%

General

DISK in 2012-2013

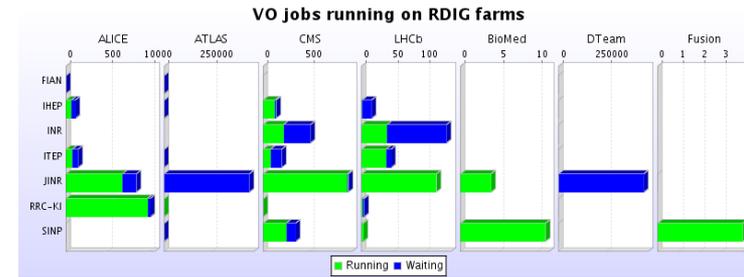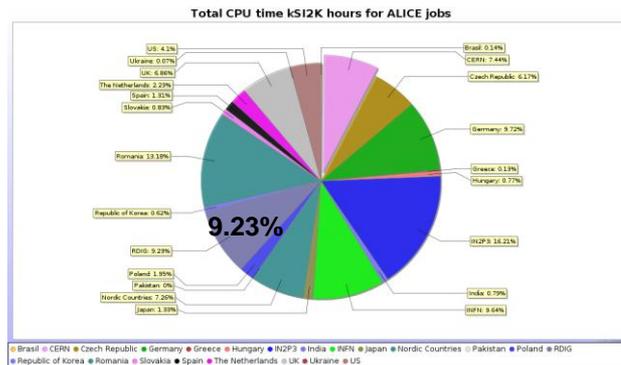|	2012				2013			
	ATLAS	CMS	**ALICE**	LHCb	ATLAS	CMS	**ALICE**	LHCb
JINR	360	360	**315**	0	660	660	**480**	0
NRC KI	474	435	**387**	205,5	853,2	783	**696,6**	369,9
IHEP	340	142	**68**	0	340	142	**68**	0
ITEP	9	233	**120**	0	9	233	**120**	0
SINP MSU	3	350	**0**	0	3	350	**0**	0
INR RAS	0	183	**100**	0	0	183	**100**	0
PNPI	136	28	**44**	0	136	28	**44**	0
SPbSU	0	0	**60**	0	0	0	**60**	0
LPI	29	21	**0**	0	29	21	**0**	0
	1351	1752	**1094**	205,5	2030,2	2400	**1568,6**	369,9

General

3 comments:

- **From JINR system administrator:** It is very desirable a migration to the common for other 3 VOs scheme of application software installation -   **CVMFS**, what now is operating at JINR and other sites. The torrent usage at JINR is forbidden today by network administrator.

- **The request from main part of Russian system administrators**: ALICE T1/T2 meeting would be more suitable for Russian participants if it will be organized in CERN.

- **There will be in the present year** 5th International Conference «Distributed Computing and Grid Technologies in Science and Education» at JINR, Dubna 16-21 July

Problem of alien exploitation on the sites

- Disk space usage on the servers (cache and another files):
  - cache in alien home
    - Packman cache is stored in home for default. This cache could occupy all space of home user catalog space (or another catalog if you use special setting)
    - The same problem we see at the torrent site RRC-KI.
  - Old packages from packman in the "packages" directory
  - Bulk xrootd files (logs and files after each xrootd restart from cron)

- Jobs
  - Jobs setting
    - Memory usage
    - used *"df –h"* on NFS (Software Area). (I hope, It will not use on torrent versions)
    - **In the torrent case** there is not used Software Area. But in the CREAM-CE file /var/lib/tomcat5/webapps/ce-cream/WEB-INF/jobwrapper.tpl there is a call of lcg-jobwrapper-hook.sh which is searching the soft ware area .
    - need different role for nagios jobs and real jobs. (example for maui configure, for different priority)

- # Xrootd:
  - ## monitoring:
    - ➤ It is necessary the real monitoring of xrootd services, especially a state of transport data at all site servers. This is important for site administrators who would be able to see what, where and how many data have been transferred in accordance with xrootd protocol. In addition it would be good to have statistics from (to) site collected to data base. statistic, (input, output)
    - ➤ Some time ago there have been announced insertion of xrootd into BDII. Is it really workable? Is anywhere a such package and documentation for it installation into BDII.
  - ## packages:
    - ➤ RPM
    - ➤ cross-platforms - RHEL/SL/SLC/CenOS 5.X/6.X

Documentations!!

Network setting, Requirements, OS, using, monalisa monitoring, xrootd testing, etc.

Tier-1 project status in NRC "Kurchatov Institute"

Eygene Ryabinkin, rea@grid.kiae.ru

National Research Centre "Kurchatov Institute"

ALICE T1-T2 workshop, 2012, Karlsruhe

Project overview

1. **Russian Tier-1 project** is currently in the research and development phase that lasts 600 days since the late 2011.

2. **Project aims** at creation of the technical and operational documentation on how to setup and operate the Tier-1. After the successful finish it should be possible to create the real Tier-1 using the experience and documentation created during the current project. It is expected that in late 2013 or in the beginning of 2014 there will be a government-funded project to create the Tier-1 in Russia.

3. **Additional output** for the project will be the team of people who can successfully operate the Tier-1: they will get the knowledge in the course of the research and development project.

4. **Currently accepted layout** is that NRC-KI will be operating Tier-1 for ALICE, ATLAS and LHCb and JINR will take Tier-1 for CMS.

Project phases

1. **(2011, done) Global planning, seeking for the knowledge** from existing Tier-1, analyzing their experience, delivery of first hardware for a testbed: 600 CPU cores, 900 Tb of storage

2. **(till May 2012, current phase) setup of the first prototype,** extensive testing and research on various aspects, including storage technologies (dCache, EOS), hardware configurations for services and number crunchers; planning for tape robots and network equipment for LHC OPN; more detailed architecture for the Tier-1

Project phases, continued

3. (till October 2012) second iteration with the prototype, setup of LHC OPN, experiments with tape libraries and software (CASTOR, dCache); letting first Grid jobs to hit our prototype; planning for additional purchases; research and development on the additional services and redundancy

4. (till May 2013) large-scale testing of the whole infrastructure, load tests that aid to extrapolate testbed results to the whole Tier-1 capacity; preparation of final documentation and reports.

Infrastructure for Tier-1

We have a fully-equipped hosting facility for Tier-1:

- ❑ Class A power infrastructure with two redundant power feeds, UPS facilities (estimated work time in a full load –1 hour) and emergency diesel generators.

- ❑ Cooling facilities with water-based chillers; can handle up to 750 kilowatts of thermal emission.

- ❑ 24x7 duty, monitoring of engineering systems and fire alarms.

- ❑ Various rack configurations including stand-alone racks, rack isles with closed hot areas and telco racks.

- ❑ Existing 2x10 Gbit/sec connection to GEANT via e-Arena NREN.

Human resources

Currently we have the following technical team:

- ❑ Project head: Yury Lazin.

- ❑ Technical architects: Eygene Ryabinkin, Igor Tkachenko

- ❑ Senior administrators: Roman Kolchin, Ilya Lyalin, Fedor Checherov

- ❑ 2 R&D students

- ❑ 2 technical writers

Of course we need to enlarge our team: we need more service (around 6) and senior administrators (at least, 10), VO experts (at least 3) that will bridge the technical teams and LHC VOs, network administrators (2-3 people). In a coming month we expect at least 2 more people to join ourteam and we're constantly looking for more staff members

That's all, folks!

Questions, comments?