

STATUS OF KISTI TIER1

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On behalf of the GSDC Tier1 Team

WLCG Management Board

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OUTLINE

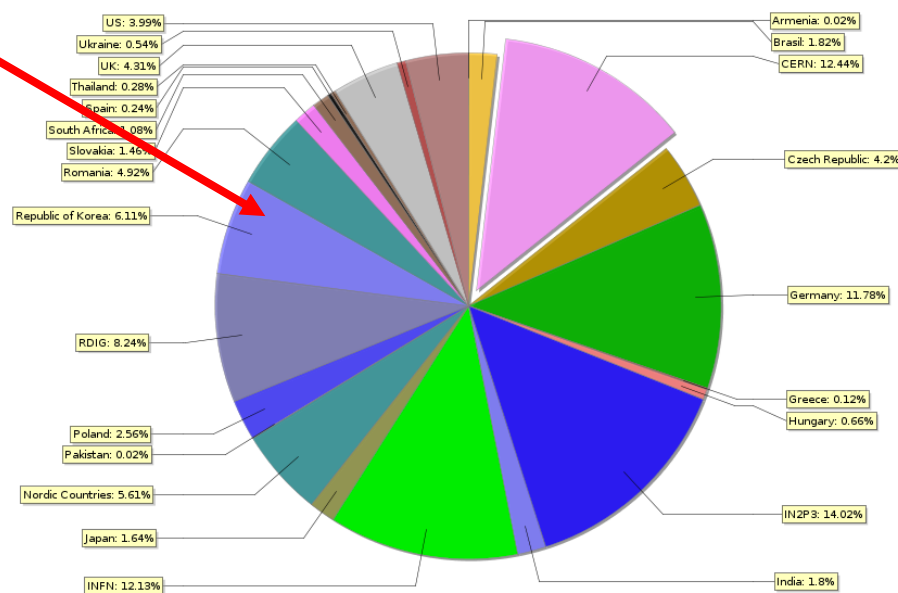
- Operations
- Network Upgrade Plan
- Conclusion

OPERATIONS

Jobs

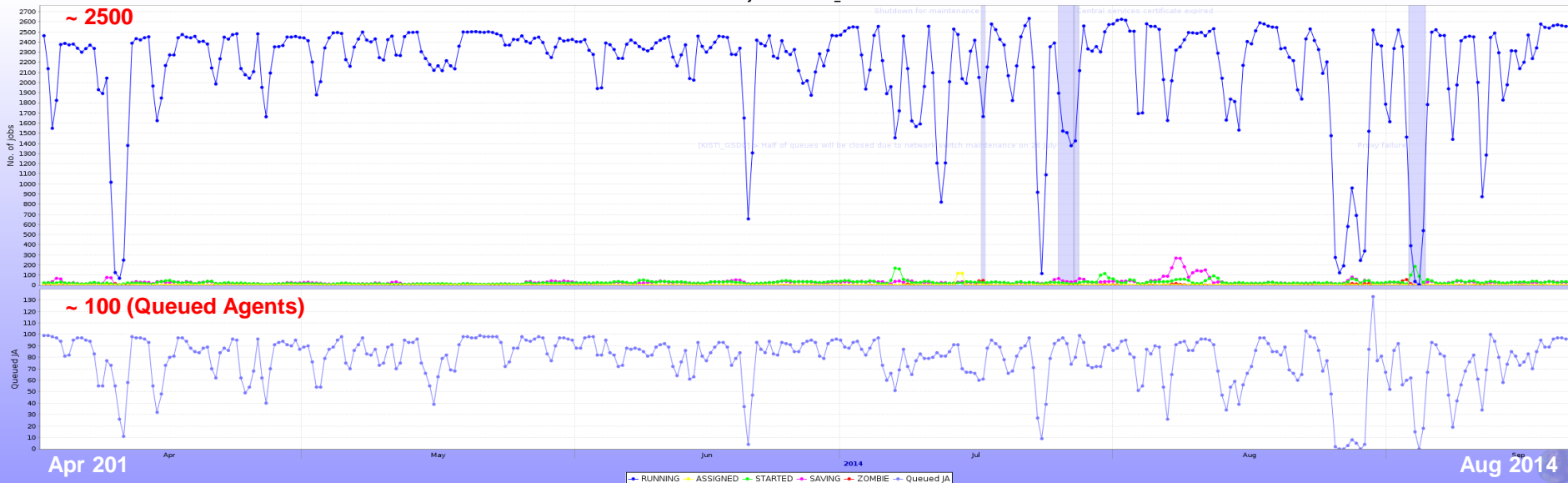
- 2,688 concurrent jobs = 28 kHS06
 - 84 nodes, 32 (logical) cores per node, 10.5 HS06/core
- Stable and smooth running
 - Few short incidents mostly due to the maintenance of undersea optical fibre link
- Completed 2M jobs in the last 6 months
 - More than total processed jobs in the last year (1.8M)

Total wall clock hours for ALICE jobs in 2014



KISTI, 6.11 %
(Including Tier-2)

Active jobs in KISTI_GSDC



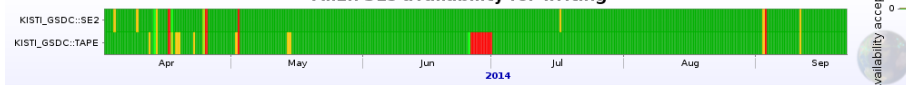
Storage

DISK

- Deployed 1000TB
 - XRootD managed – 1 redirector, 9 storage nodes
 - Pledges for 2014 fulfilled

< Storage Availability >

AllEn SEs availability for writing



Statistics

Link name	Data		Individual results of writing tests			Overall Availability
	Starts	Ends	Successful	Failed	Success ratio	
KISTI_GSDC::SE2	01 Apr 2014 08:17	22 Sep 2014 06:16	2072	13	99.38%	99.44%
KISTI_GSDC::TAPE	01 Apr 2014 08:17	22 Sep 2014 06:17	2010	76	96.36%	96.44%

< Storage Usage >

Name	Status	Size	Used	Free	Usage	No of files	Type	ADD test
ALICE::KISTI_GSDC::TAPE	OK	200 TB	167.1%	-	334.3 TB	425.4 K	FILE	OK
ALICE::KISTI_GSDC::SE2	OK	966.8 TB	44.25%	539 TB	427.8 TB	8.363 M	FILE	OK

< Tape Buffer Usage >

Xrootd info				Functional tests			Last day tests		Demotion factor	
Size	Used	Free	Usage	Version	EOS Version	add	get	Last OK test		Successful
387.2 TB	214.7 TB	172.4 TB	55.47%	v3.3.4				22.09.2014 08:17	12	0
387.2 TB	214.7 TB	172.4 TB								

TAPE

- Deployed 1040 TB
 - 8 Tape drives w/ total 2 GB/s throughput
 - 260 Tapes, 4 TB per tape
 - Pledges for 2014: 1,500 TB - purchasing additional media now
- Tape buffer pool – XRootD + TSM
 - 2 redirector, 20x20TB servers (400 TB pool)
 - 2 TSM server + 8 GPFS servers (200 TB pool)
 - Total 600 TB
- Data migration with FRM (File Redundancy Manager) from XRootD to GPFS
 - Using ITLM(IBM) policy integrated in GPFS towards backend storage

Site Availability/Reliability

$$Reliability = \frac{T_{UP}}{T_{UP} + (T_{DOWN} - T_{SCHED_DOWN})}$$

$$Availability = \frac{T_{UP}}{T_{UP} + T_{DOWN}}$$

- 100% Reliable for the last 6 month (from April to September)
 - Monthly Target for Reliability of ALICE test: 97%
- On track for a stable and reliable site
 - Participating in weekly WLCG operations meetings (2 times (Mon/Thu) per week): reporting operation-related issues

< Summary >

	Reliability		Availability	
	Overall in 2014	Last 6 months	Overall in 2014	Last 6 months
ALICE	99 %	100 %	98 %	99 %

< Monthly Availability/Reliability (%) >

	Apr	May	Jun	Jul	Aug	Sep
Reliability	100	100	100	100	100	100
Availability	100	99	99	99	100	100

- ※ Few announced downtime for maintenance in May, June and July.
Downtime announcement keeps sites reliable but cannot prevent them from being unavailable

Joining OPN

- LHCOPN Joining done in Jan 2014
- perfSONAR instances are installed and fully functional
 - Scheduled tests among WLCG Tier-1 sites

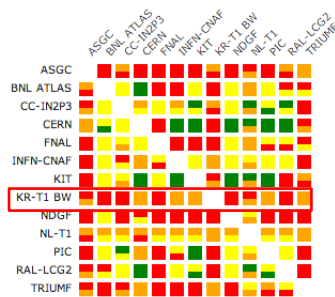
WLCG/OSG perfSONAR Dashboard

Dashboards

OPN sites Dashboard

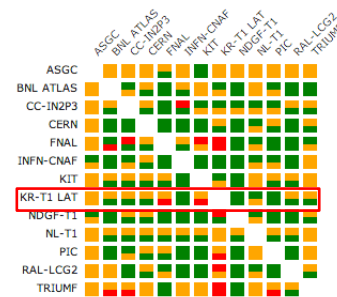
OPN sites - TCP BWCTL Test Between OPN Bandwidth Hosts

■ Throughput \geq 900Mbps
 ■ Throughput $<$ 900Mbps
 ■ Throughput \leq 500Mbps
 ■ Unable to retrieve data
 ■ Check has not yet run



OPN sites - OWAMP Test Between OPN Latency Hosts

■ Loss rate is \leq 0
 ■ Loss rate is \geq 0
 ■ Loss rate is \geq 0.01
 ■ Unable to retrieve data
 ■ Check has not yet run

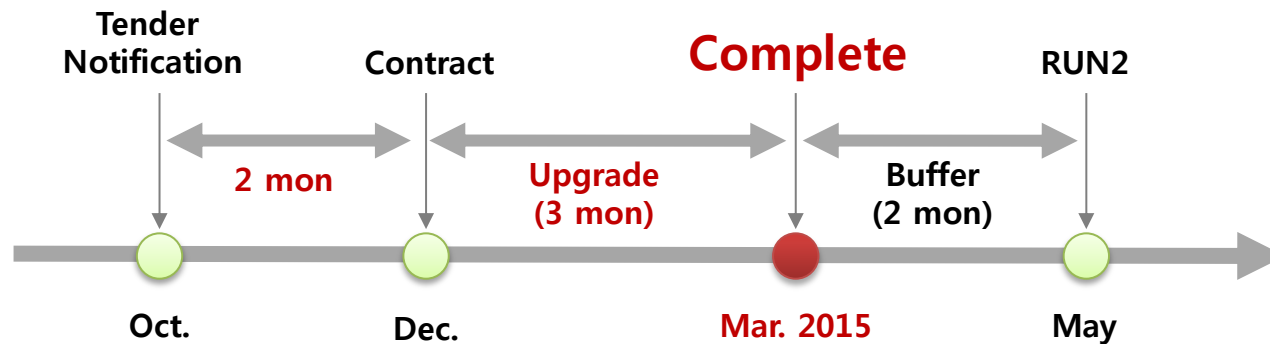


✘ For the moment, perfSONAR instances are down due to shellshock; to be re-installed with new release by December

NETWORK PLAN

Network Upgrade Schedule

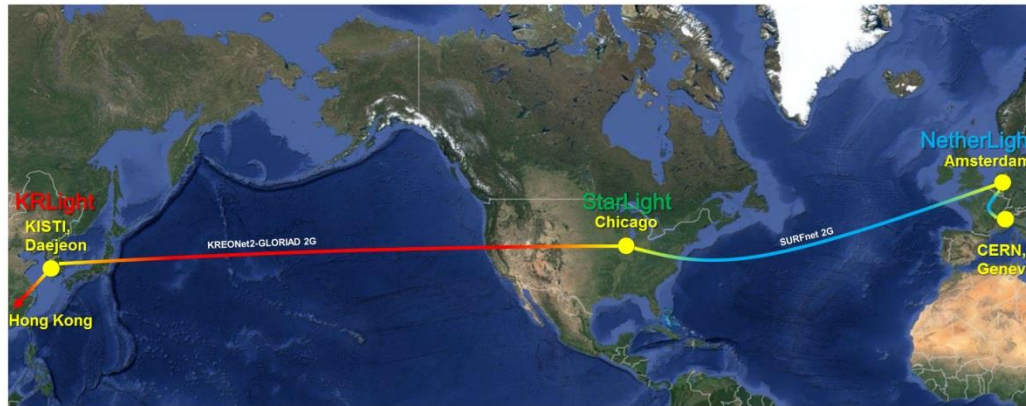
10Gbps upgrade will be completed by March, 2015 at least before RUN2 starts



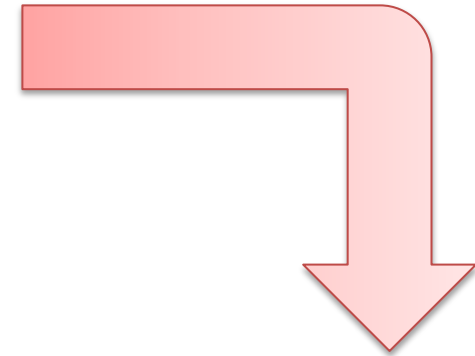
- ➔ Funding has been secured with a lot of supports from Korean government.
- ➔ Only administrative procedures are left.

Planned 10Gbps Network

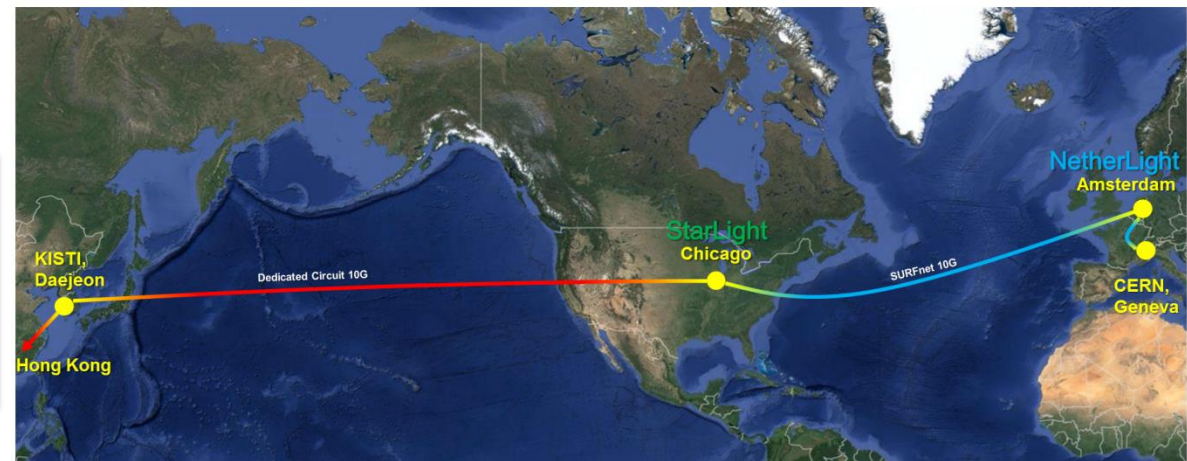
As-Is: 2G KREONET2 + 2G SURNet



10Gbps Upgrade



➡ To-Be: Dedicated Circuit 10G + 10G SURFnet



Contracted provider will allocate the dedicated circuit 10G.

Conclusion

- WLCG Tier-1 at KISTI has been running stable
 - Most reliable site in WLCG
- Fulfilled the requirements for Tier-1 and fully functional
 - Computing and Storage resources
 - Network: 10G will be at service by (at least) Mar 2015 regarding procurement process

THANK YOU
감사합니다
